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LOOSE PULLEYS.

IN its practical mechanics, the Boston Journal of Commerce says: The loose pulley stands the poorest show of any of the rotative parts of a machine; it rests upon a narrow base, bringing the strain from one side to the other, and the wearing surface upon which it turns is not stationary but continually moving, so that it can never settle down into one place as it would when fixed to a shaft, but brings the whole embodiment of this part of the machine within the thickness of the pulley, and it is no wonder it is the most troublesome thing to be found in a mill to keep in order or around any manufacturing concern where machinery is driven by power. It is generally of poor design for the work it is to perform, often cast from the same pattern that the fixed wheels were cast from, with no projection of the boss on either side, and in many places no room is allowed even if the hub extended on each side of the pattern. The fixed pulley can be keyed strong enough when it is allowed to overhang a trifle and it makes a very valuable space for the loose pulley, as the boss when left to project beyond the rim on both sides of the wheel is far more proficient than when left on one side alone. It must be turned perfectly true, especially where the speeds are high and the belts heavy and must fit loosely on the shaft, as it is not the shaft that the pulley is to drive while in motion. The oiling has the full benefit of the centrifugal force to keep the greasy particles from ever reaching the wearing-surface they are to protect. An oil cup filled with oil may work very well while the wheel is at rest, but when in motion must rush to the place the farthest from the center, even when in an upright position above the shaft, unless it is a mercurial oil cup of some kind that contains a fluid that is much heavier than the oil that forces it into the bearing. There are a number of patent pulleys having a sleeve of some sort with the wearing surface on the largest diameter, where the oiling can make use of the centrifugal attraction that tends to keep a loose pulley dry. We have made use of the sleeve, in repairing loose pulleys when they have become troublesome, by reboring them and fitting them to a sleeve made of cast iron, and the sleeve bored out to fit the shaft tightly; and where the pulley is fitted on the end of a shaft on a spinning frame, and fastened with a collar, the sleeve can be left with a head to take the place of the collar, and fastened with a set-screw. The shaft should be turned down a shaving to give the sleeve a bearing as it is likely to have been worn by the pulleys. The boss of the fast pulley on the inner side can be turned off a little to allow the sleeve to bridge across the injured surface. There are many places where the loose pulley can be left of a smaller diameter than the driving wheel, but the difference should be small, not over an inch, as the belt becomes injured by shipping. It is usual in this case to make the loose pulley with an inclined flange leading up to the rim of the fast pulley, and even then the belt becomes stretched on one edge so as to run out of line. But, after all, the loose pulley, when carefully attended, makes the most simple arrangement for connecting and disconnecting machinery.

For shafting the loose pulley meets with the disadvantage of wearing flats on the

shaft, bringing the edges where two of these facets meet, to the injury of the pulley, and where power is to be taken from one room to another in the same direction, there is generally room sufficient to support the loose pulley on a separate shaft. This arrangement is shown in Fig. 1. There is no trouble with an overhung wheel, though it is preferable to have every pulley supported from each side, and in this case the loose pulley has an equal chance with the driven wheel. The belt is either driving the line shaft, or the countershaft, accordingly as it is shipped from one wheel to the other; the shaft is divided between the wheels, and there is no need of having the slightest difficulty with this manner of disconnecting a shaft, and it is a simple matter to arrange a shipper to work with rack and pinion that shall be proof against accident, or the ma-

Fig. 1

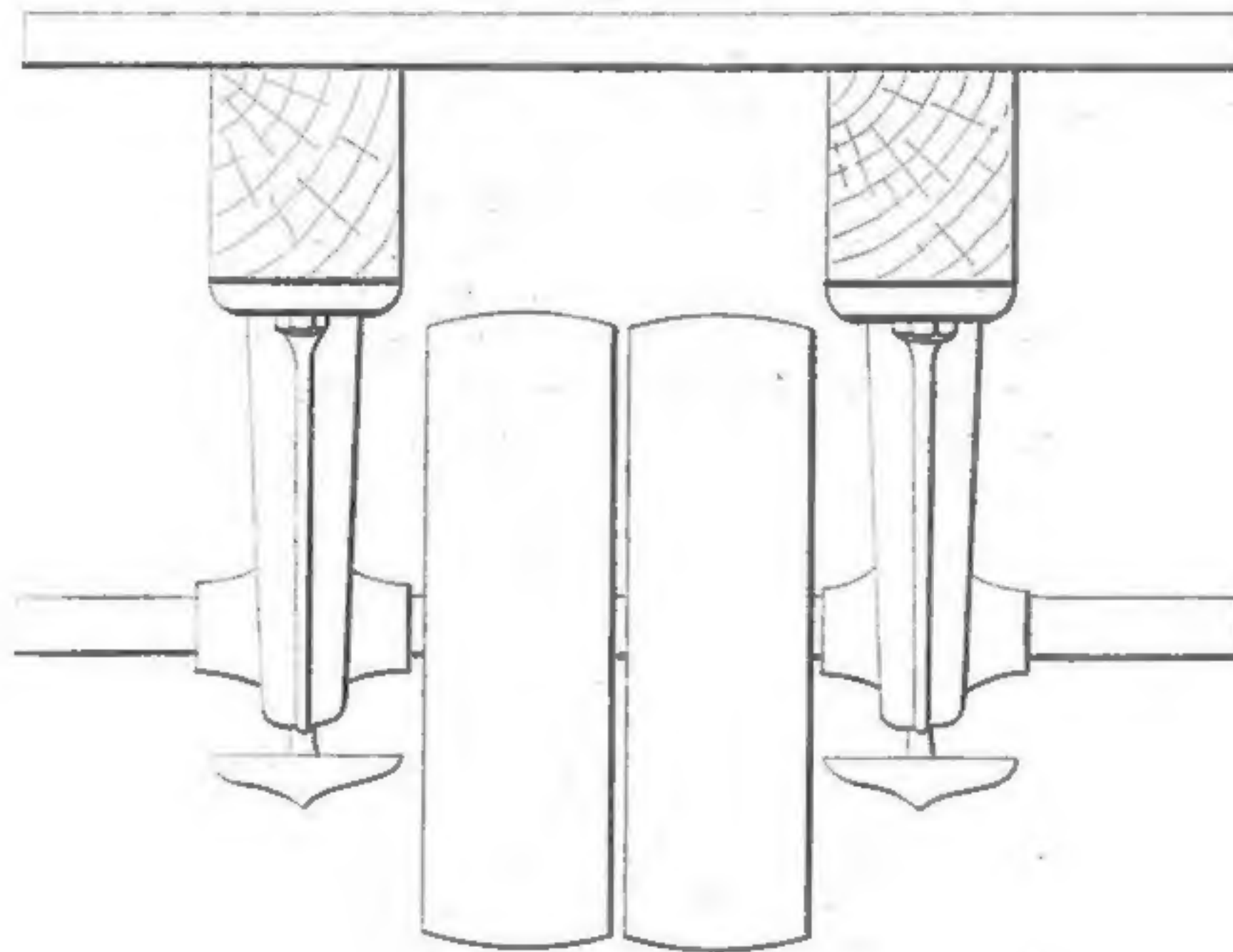
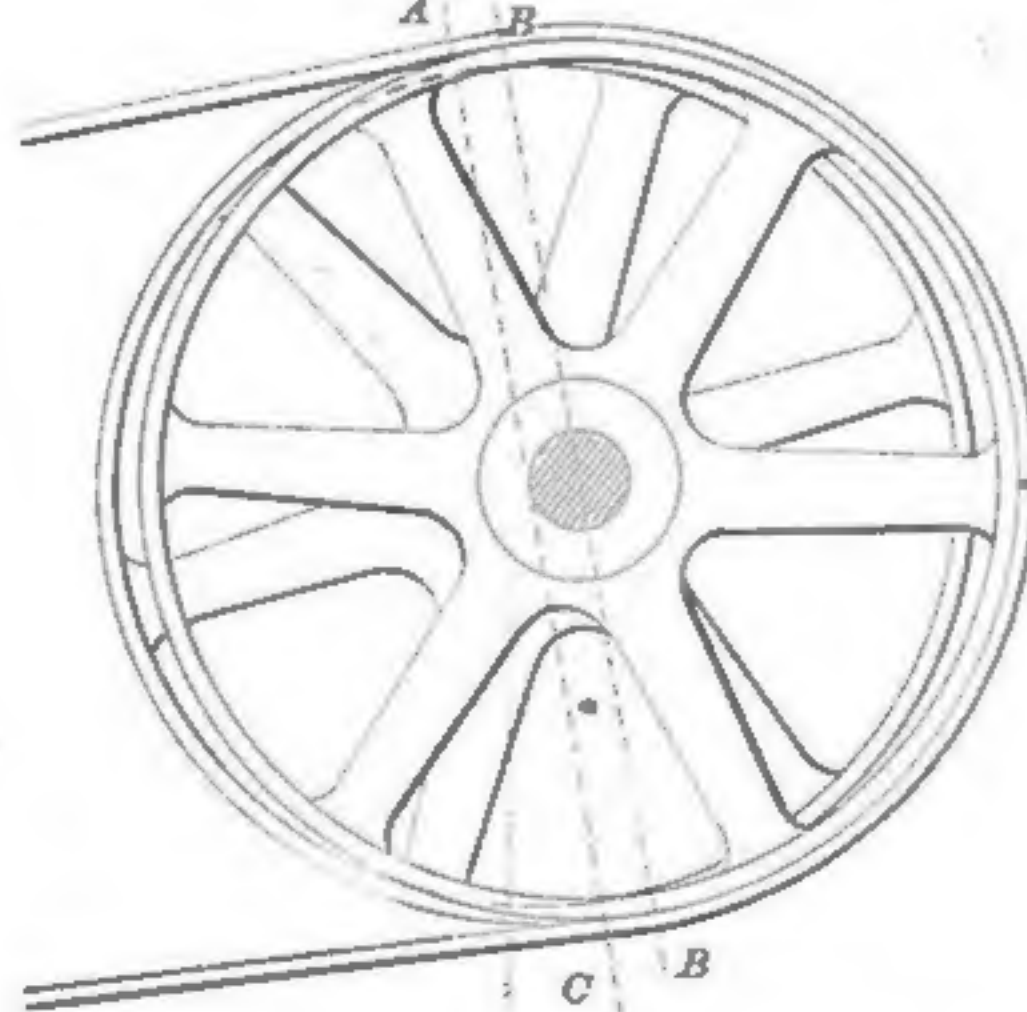


Fig. 2



chines be set in motion by the belt working on to the fast pulley. The mode of connecting allows another advantage to be taken to lessen the strain on the belt when not at work, and give it a chance to recover its elasticity, as shown in Fig. 2. The idle wheel is set out of line by the amount shown between the dotted lines, A B and C D, that relieves the strain in the direction of the tension of the belt. This brings the shipping of the belt at the beginning of the arc of contact alike on both pulleys without a step for the belt to climb over, but there is a straining effect on the edge of the belt, as it is drawn out between centers, and there must be the need of an inclined flange, if there is not the room for one. A belt should not be worked to such an extent as to need rest when on the idle wheel, and if care is taken in selecting the material for the belting, these offsets in the position of the wheels, or in their

diameters, may be dispensed with, and the shortening of the life of this part of the machinery will never be noticed.

ANNUAL CONSUMPTION OF WHEAT.

The following question as to the quantity of wheat consumed per capita in the United States, was recently submitted by New York parties to the Cincinnati Price Current: Mr. Nimmo's official statement shows that we consumed 6.30 bushels of wheat per capita in 1883. Is he correct, or are the figures correct given by you as 4.60 bushels per capita for domestic consumption of wheat for food and other purposes, excluding seedling, or about 5½ bushels including the latter? To this the Price Current answers:

Mr. Nimmo's figures are correct in what they intend to show, but not as representing

an apparent consumption of 6.57 bushels per capita, had at its close a quantity of wheat in the country in excess of the amount at the beginning of the year amounting to 50,000,000 bushels or more—or about one bushel per capita, which had not been consumed—leaving it apparent that the actual consumption for the year, for all purposes, including seedling, was approximately 5½ bu.

The change from the beginning to end of the year 1884 has been over 20 per cent. in breadstuffs, about 5 per cent. in dairy products, about 20 per cent. in sugar, tea, coffee, and other imported articles of food, and about 26 per cent. in meats. In staple articles of clothing the decline was about 6 per cent., in coal and oil about 15 per cent., in lumber and building materials exclusive of metals very small, in iron and steel and other products about 16 per cent., in other metals nearly 20 per cent., in paints about 9 per cent., and in paper and drugs about 5 per cent. In all articles of food taken together, the average decline was about 14 per cent., and in other articles, principally manufactured products, about 8 per cent.; so that from the beginning to the end of 1884, the average decrease in price of products was about 11 per cent. It will be observed that this is just the decline that appears in the reported volume of business at Chicago; so that if the level of prices has declined from the average of 1883 to the average of 1884 as much as it has declined from the beginning of 1884 to the end of that year, the decrease in the volume of business at Chicago would indicate no change whatever in the quantity of products transferred. Of course, it is impossible to determine the average yearly, as the quantity of business done in different months and weeks varies widely and cannot be computed.

The records kept in New York are altogether valueless as an indication of quantities of products actually transferred. A very large proportion of the transactions are purely speculative and involve no actual transfers. Thus the sales of oil at the two exchanges appear to have been about 3,970,000 barrels, the entire quantity of oil in the country being about 80,000,000 barrels. In other words, at this one city the entire quantity of oil in the country was theoretically sold considerably more than a hundred and thirty times during the year. The actual transfers of oil for consumption, of course, amounted to only a fraction of the yearly product. The operations of the Cotton Exchange are to a large extent of the same character; 24,000,000 bales were sold at New York alone, while the entire crop of visible and tangible cotton handled by anybody during the year, in all the ports of the country, was less than 6,000,000 bales. In the Stock Exchange 95,000,000 shares were sold, of which 12,356,000 were sold in the month of May when the panic occurred. Apparently, the decline in value of stocks during the year has made a difference of nearly \$200,000,000 in the amount of money changing hands on account of transactions in securities. No full report has yet been given of the aggregate transactions in the Produce Exchange, but those have also been very largely speculative in character.

The decline in prices is not by any means an unmixed evil. To all consumers it means a lower cost of living, and the depression in business, which has rendered a general re-

what has been implied; their meaning is to show the remaining quantity, averaged per capita, after deducting the export movement from the annual production, without reference to varying quantity of wheat in the country at the beginning and end of the year. By ignoring this feature of the exhibit essential to forming a correct indication of what the consumption actually is within the period of the year, the apparent consumption for a series of years ending June 30 has been as follows:

1884.....	5.60	1879.....	5.58
1883.....	6.57	1878.....	5.73
1882.....	4.89	1877.....	5.01
1881.....	6.06	1876.....	4.82
1880.....	5.34	1875.....	5.37

Covering the entire ten years quoted, the general average is 5.48 bushels, for the last five years, 5.67, and the former period of five years 5.30. As a matter of fact, the year referred to by our correspondent, showing

duction in wages necessary, would have been far more serious in its consequences to the laboring people, had not the decline in prices been considerable. Practically, those who earned at the rate of \$1,000 a year, at the beginning of the year, and now have their wages reduced to the rate of \$900 a year, can buy as much with the reduced wages as they could buy one year ago with the larger wages then received. With adjustment to a lower cost of production, recovery and gradual expansion will come to many branches of business in which there has been serious stagnation, and there is much reason to believe that this adjustment, and the prolonged liquidation during the year 1884, have prepared the way for a more prosperous business hereafter.—New York Commercial Bulletin.

THE FRENCH TAX ON BREAD-STUFFS.

"The French Government," says the Manchester "Examiner" of the 4th inst. "after a period of hesitation that seemed to promise a wiser determination, resolved on Saturday to levy a tax on imported corn. The duty of 60 centimes per quintal (220 lbs.) is to be raised to 2f. 60c., which will amount to more than 12 per cent. on the average value of corn, and, as always happens, that impost will increase, because the profits will be assessed on the enhanced price, as the material passes through the hands of the middleman, the miller and the baker. At any time such a duty would be a grievous mistake. Now, when the destitute working classes throughout France are clamoring for cheap bread, it is a cruel blunder. With an industrial depression more severe than the country has known for a generation, and at the beginning of what bids fair to be a long and hard winter, it is not too much to say that the institution of a 'bread tax' is an act of positive inhumanity. Not more amazing, however, than the imposition of the tax is the plan which is being proposed by Government functionaries to counteract its effects upon the public. We published the other day a correspondence between the Prefect of the Seine and the Mayor of Manchester. It was calculated to make the reader pause and ask himself whether by some mistake the Prefect's letter had not been framed on a musty model of a century ago. The Prefect's object was to find support, if possible, for the contemplated enforcement of an ordinance, which dates from the days of the monarchy, empowering the authorities to fix the selling price of bread. The manner in which the revival of the ordinance would be received by the bakers has already been significantly shown, not only in Paris, but in the coast towns and in the south. If it were pressed, the Government would be likely to have two justly irritated and disaffected classes to deal with. The strange part of the whole business is that the tax on food has been created in compliance with the demands of a mere fraction of the population. The landowners who complain that their incomes are affected by the low prices corn is realizing, owing to foreign competition, are the only persons who can possibly be benefitted. For their advantage the distressed population, who find it difficult to buy bread at present, are to be required to pay an artificial price or starve."

THE PROFITS OF EASTERN FARMING.

Can farmers of the Eastern and Middle states raise grain on land valued at \$100 per acre and pay interest on value at present market prices? is the question asked and answered by a correspondent of the Country Gentleman as follows:

What has been done heretofore by a few farmers, I may infer, can be done again, and by all who will cultivate in like manner.

Let us estimate what it costs to raise grain in a four years' rotation of crops in a system of mixed husbandry. Begin with a clover lea, and prepare it for corn by spreading all the manure of the farm on the sod in winter and spring, before plowing, in a raw, unfermented state; plow nicely, turning the sod seven or eight inches deep; then harrow well with Acme or fine tooth Scotch harrow, first lengthwise of furrow, then anglewise, till a fine seed-bed is procured and made ready to drill in the seed about the 15th, or by the 20th of May. The drills should be three and one-half or four feet apart, and the seed sown at the rate of eight quarts per acre. As soon as the plants are large enough to show the rows distinctly, cultivate, running as near the rows as possible without covering the plants, and repeat it every eight or ten days until wheat harvest. If weeds or thistles spring up in the rows, they must be cleaned out by hand-hoeing. After the grain harvest is over, go through the corn field with a hoe, and cut all thistles and large weeds that have escaped the early cultivation. This will leave the land clean, as no weeds will ripen seeds afterward. An average yield should be above fifty bushels per acre, which, at 50 cents a bushel, will amount to \$25. The cost of raising (per acre) will be about as follows:

Drawing and spreading manure.....	\$5.00
Plowing.....	1.50
Harrowing.....	1.00
Drilling and seed.....	.50
Cultivating.....	2.50
Hoeing.....	2.00
Cutting and shocking.....	1.50
	\$15.00

The stalks will pay well, for husking and cribbing. If beans are grown in part, instead of corn, the expense of growing will be about the same as that of corn; yield, say twenty bushels; average price \$1.20 per bushel, making \$24 per acre.

The next crop in rotation is barley or oats, the expense of raising which will be as follows, per acre:

Plowing (no sod).....	\$2.00
Harrowing.....	1.00
Seed and drilling.....	2.00
Fertilizer.....	2.50
Cutting thistles.....	.50
Harvesting and securing.....	2.00
Threshing and marketing.....	3.00
	\$15.00

The average yield should not be below forty bushels per acre, which, at 70 cents per bushel, makes \$28.

The third crop will be wheat, the cost (per acre) of growing being as follows:

Plowing.....	\$2.00
Harrowing four times over.....	1.00
Gang plowing twice over.....	2.00
Rolling twice over.....	1.00
Fertilizer.....	2.00
Drilling and seed.....	2.00
Harvesting.....	2.00
Drawing in.....	1.00
Threshing.....	2.00
	\$16.00

The straw pays for cleaning, marketing, and any other incidental expenses. An average yield should be thirty bushels, or above; thirty bushels at 80 cents, \$24.

The fourth crop is clover and timothy for hay or pasture, yielding two tons per acre, which, at \$8 per ton is \$16. Expense of crop:

For seed and sowing.....	\$1.50
Picking stone and rolling.....	.50
Mowing and making hay.....	2.00
Drawing into barn.....	2.00
	\$6.00

If in pasture, it is worth the same. For four years' use of land, I find the following returns and expenses:

	Returns.	Expenses.
Corn.....	\$35	\$15
Beans.....	24	15
Barley.....	28	13
Wheat.....	24	16
Hay.....	16	6
	\$117	\$85

I estimate the cost of each crop at job prices—what the farmer would pay for labor, with teams and tools furnished by the workmen. The farmer owning teams and tools,

and managing his business well, can do the work at less cost. This system may embrace the entire farm, if all is grain land, as one-fourth the acres would be annually in grass. If a portion of the farm is only fit for grass, or is in orchard, it ought to pay as well. All the corn, oats and fodder should be fed to stock on the farm, to furnish manure and to increase profit. I find for the use of land, or net income, the following per acre:

In corn.....	\$10
beans.....	9
barley.....	15
wheat.....	8
hay.....	20
Average, \$10 40 per acre.	

The above figures cannot be relied on as accurate, it is true, for seasons vary so as to effect the yield of different crops, but I am sure that our best class of Western New York farmers can verify such as reasonable returns. The value of farming lands will still depreciate, if present prices continue for a series of years, for the average farmer does not cultivate so as to make the farm pay interest on present valuation; but it is possible to make all arable lands in this locality pay interest on a valuation of one hundred and fifty dollars per acre, which is above present value. It is plain to be seen that nothing short of a thorough system of farming will pay at present prices, or sustain present value of lands. The negligent farmer, who allows his lands to grow weeds and all manner of foul stuff, and sows his crops out of season, and on land but half tilled, is not only robbing himself of all profits, but is depreciating the value of his farm, and the value of the prosperity of the state.

In connection with this course of cropping, there should be other interests common to all diversified farming, which will add to the general profits of the farm. Stock raising and feeding for beef, pork and mutton, and profitably connected with grain-growing and cannot well be neglected. The large quantity of straw and cornstalks can be made a source of profit in wintering stock, and for bedding for fattening stock, thus saving all the liquid manures in a cheaper way than can be done in any other. The manure manufactured by utilizing all the straw and stover of the rotation crops is of great value in keeping good and increasing the fertility of lands. All the natural grain soils can be kept fertile under this system of diversified farming without depreciation, and without sources of manuring than the farmyard and stable. Under any system of special grain-growing, or any other specialty that does not include feeding, there will be depreciation of soil, without other sources of manuring than the farm itself affords. No system of farming can be commended that depletes the fertility of soil, when means of restoration are not at hand.

INDIAN AND AMERICAN WHEAT.

Says the San Francisco, Cal., Chronicle: We are now enabled, from the report of Consul-General Leonard, of Calcutta, to form a reliable estimate of the wheat productions of British India in 1884. The area under cultivation is said to be 26,000,000 acres and the product 244,000,000 bushels, or 9½ bushels to the acre. The acreage planted to wheat in California this year was about 4,000,000 acres and the product about 57,000,000 bushels, or 16¼ bushels to the acre. The total acreage planted to wheat in the United States is about 40,000,000 acres and the yield this year about 510,000,000 bushels—say nearly 13 bushels to the acre. British India has thus considerably over half as many acres in wheat as the United States, and produces nearly one-half as large a crop. Last year the crop of India was reckoned at 290,000,000 bushels.

Notwithstanding the cheapness of labor in India and the fertility of the soil, the cultivation of wheat growers in that country is

that it costs them to raise wheat and ship it to Delhi, which, like Chicago, is the primary market for Indian wheat, \$1.33 a cental—say 1½ cents a pound. This is about what it costs here—if anything, a trifle more. When, as at present, wheat at Delhi will not realize as much as this, the Indian farmer holds back his crop in view of the possibility of a famine. Delhi is nearly the same distance from Calcutta that Chicago is from New York. But the freight from Delhi is 34 cents per cental, as against 25 cents, which is the freight from Chicago to New York—a third of a cent a pound, as against a quarter of a cent. Here is another advantage enjoyed by the American producer. It looks as if Mr. Caird was not so far wrong when he said that British India could not afford to grow wheat in competition with the Northwest and California, any more than it can afford to compete with the Southern States in the growth of cotton.

It is just about ten years since British India began to ship wheat to England. In 1877-78 it shipped 12,000,000 bushels; in 1880-81 the shipments were 14,000,000 bushels; in 1881-82, 37,000,000 bushels, and in 1882-83 about 43,000,000 bushels. The great decline in the price of wheat, which began last year, checked the business, and in the first six months of 1884 the shipments were only 11,125,000 bushels, as against 20,518,000 bushels in the corresponding months of 1883. The consumption of India is reckoned at 200,000,000 bushels, leaving 41,000,000 bushels available for export—nearly one-half England's requirements from abroad. But it is evident that with a prime cost of \$1.33 per cental at Delhi, and freight of 34 cents from that point to the seaboard, India cannot compete with Chicago or San Francisco.

Wheat growing in India depends in some parts on the monsoon rains, in others upon irrigation. We know in this State that with anything like present prices, if the cost of irrigation has got to be added to the other costs of growing wheat, the industry will not pay. Under the present unthrifty Government of India as a British colony, expenditures are incurred which promise no adequate return. But this can not last forever. It will never pay as a commercial operation to keep up a system of irrigation for the purpose of raising wheat to be sold at a cent a pound, which is likely to be the average ruling price hereafter.

THE WHEAT TRADE OF DULUTH.

The grain trade of the country has been remarkable, in some respects, the past year. In most grain centers, however, it was simply because of the very low prices at which wheat and other cereals have ruled. Duluth's wheat record, however, for 1884, was remarkable for quite another thing, and that was for the wonderful increase in the amount handled and shipped by our elevators. This increase has had nothing like it at any other primary grain mart in the country, at any time. The growth of Duluth's wheat trade since 1880, has been steady and rapid, and from a million and a half of bushels received in that year, the amount has grown to nearly nine times that in 1884. The increase of receipts in 1883 over 1882 was something that drew the attention of the whole country. The increase then was 8,437,133 bushels, or about 80 per cent. Predictions were made very frequently that a larger amount of increase would be shown at the end of 1884, and the elevator capacity of the place was enlarged by the erection of three new houses, holding 2,550,000 bushels, and nearly doubling the old capacity. Very few of the most sanguine, however, predicted an increase of more than 4,000,000 bushels. It remained for everybody to be surprised. The increase went to nearly 6,000,000 bushels, or

over 77 per cent. of total receipts of the year before, and the elevator companies have found it necessary to provide increased storage and elevator capacity. This has already been partially provided for by the completion of a storage house holding 750,000 bushels, into which the first load was emptied Tuesday, Dec. 30. Another one has been commenced, to hold half as much, with a probability that it may be enlarged to the same capacity. More elevators will also be erected during the year.

The following table, compiled at the elevator offices, gives the receipts and shipments of wheat by months, for the year, and also the increase over 1883:

Months.	Receipts.	Shipments.
January.....	187,856.00
February.....	88,559.20
March.....	95,804.00
April.....	95,135.10
May.....	353,564.30	1,562,440.00
June.....	894,327.30	670,420.00
July.....	371,934.30	936,471.00
August.....	176,494.00	410,891.00
September.....	3,039,045.00	2,089,736.06
October.....	3,458,776.20	2,147,226.00
November.....	3,327,218.30	2,300,318.00
December.....	2,035,795.50
Total.....	13,527,872.10	11,087,479.00
Shipments by rail.....	421,000.00
Total.....	13,527,872.10	11,488,479.00
Total, 1883.....	7,855,438.50	6,313,645.00
Increase, 1883.....	5,672,433.60	5,174,834.00

That the wheat trade in Duluth may be compared with other places, we give the following figures of receipts, in bushels.

Places.	1883.	1884.
Chicago.....	20,365,155	27,332,539
Milwaukee.....	9,378,823
Minneapolis.....	24,000,000	30,000,000
Toledo.....	4,885,636
Duluth.....	7,655,438	13,527,872

Milwaukee and Toledo both fell off in 1884, though the figures are not obtainable. A year ago Duluth's grain elevator capacity was 2,710,000 bushels. It has been increased by the addition of three new elevators and a storage house, during the past year, all holding 3,800,000 bushels. Two more elevators are to be erected this year, and another storage house is now under way. It is also possible that a new company may conclude to build still another elevator. When all these new houses are completed, the elevator capacity of Duluth will be something over one-third that of Chicago, which is used for corn and oats to even a greater extent than for wheat. Chicago's total elevator capacity is 25,675,000. The following is our present capacity, and that on the completion of the new houses:

Name of Elevators.	Capacity.
Union Imp. & Elevator Co.'s "A".....	560,000
Union Imp. & Elevator Co.'s "E".....	800,000
Union Imp. & Elevator Co.'s warehouse.....	375,000
Lake Superior Elevator Co.'s "B".....	1,000,000
Lake Superior Elevator Co.'s "C".....	1,100,000
Lake Superior Elevator Co.'s "D".....	1,200,000
Lake Superior Elevator Co.'s warehouse.....	750,000
Duluth & Western Co.'s "D".....	55,000
Duluth & Western Co.'s "E".....	550,000
Total.....	6,885,000

TO BE ERECTED.

Lake Superior Elevator Co., new house.....	1,500,000
Union Imp. & Elevator Co., new house.....	1,000,000
Total.....	2,500,000
Total estimated capacity, end of year.....	8,885,000

The business done by the Duluth Board of Trade has assumed great magnitude, and is rivaling that of many of the older grain markets. The Board has been organized three or four years, and has a membership of about thirty, representing the grain dealers of Duluth and a few of those of other cities. The transactions this past year have partaken more of a speculative nature than ever before, there being considerable dealing in "futures." It became necessary, a short time ago, to accommodate the members and meet the demands of business, to establish an afternoon call board, so that two daily sessions are now held. The transactions for 1884 were three times greater than those for any previous year, reaching away up in the

millions of dollars. The Duluth market is now quoted on 'Change in nearly all the large cities, and to a great extent governs the price of wheat in some of them. Our city is now the recognized leading hard wheat market of the country, and prices here determine not only the prices in the producing regions, but also those of Chicago, Minneapolis, and other such cities. The prices of hard wheat, like those of all other grades, have run from ten to twenty-five cents lower than those for the same time last year.

The officers of the Board of Trade are as follows: President, W. T. Hooker; vice-president, C. Markell; secretary and treasurer, A. C. Arveson; directors, W. T. Hooker, C. Markell, George Spencer, A. J. Sawyer, W. W. Davis, R. S. Munger, and E. H. Fuller; inspector, T. A. Olmsted; weigher, J. W. Miller.

Duluth's wheat receipts for the past year were principally, in fact almost entirely, from the Red River Valley country in Minnesota and Dakota. A little came from Southern Minnesota, the far West, and Manitoba. In previous years the receipts from Manitoba were quite large, but this past year the especial efforts of a Canadian syndicate at Montreal and the Canadian Pacific Railroad authorities to carry the wheat from the Canadian Northwest over the road named to Port Arthur turned much to that place which would, under ordinary circumstances, have come to this city. The wheat crop of this year in the territory tributary to Duluth and Minneapolis was in the neighborhood of 50,000,000 bushels, counting most of the Manitoba crop as naturally going to Port Arthur and much of Southern Minnesota as tributary to Chicago, because of more direct lines of railroad to the last city. Of this amount Minneapolis received about 30,000,000 and Duluth 18,500,000 bushels. The Minneapolis receipts represent the demand of the mills of that city. The estimated crop of next year in this same territory will be about 60,000,000, a slight increase of the last year's production. It is safe to say that the larger proportion of this increase will come to Duluth. The building of new connecting roads will open up new wheat-raising territory, to the Duluth market, and the reputation for fair dealing and fair grading established here will cause much of the wheat that now goes to Milwaukee and Chicago to come to this city. Our increased elevator capacity will allow us to handle an increased amount of grain. It is well known that the lack of storage room, before the completion of elevators "D" and "E," prevented the receipts from going larger this past year. With all these advantages for the future growth of the grain trade of Duluth, and with an enterprising and aggressive set of grain dealers here, together with many other points of advantage not mentioned, it is evident that the increase will, for the next few years, be at nearly the same rate as for the past two.

The vast territory to the west of us will soon produce nearly all the best wheat of the country, and its crops will easily rank first of all other regions in their size. The amount of wheat that will be produced by Minnesota, Dakota, and Montana ten years hence cannot be estimated. It will nearly all naturally come to Duluth, and this port will lead all others in the country by many millions. The receipts for 1885 will run well up toward 20,000,000; if the outlook for high prices warranted the sowing of a large crop, they would fully reach those figures, and thereafter grow larger and larger. Within two years we will distance both Toledo and Chicago in receipts. Next year we will be the first shipping port on the lake. We lack but 300,000 bushels of leading the largest other port, Chicago, this year.

The coming year will witness the growth of a considerable trade in corn and oats. Had the elevator capacity been sufficient this past year, the corn receipts would have reached up into the millions. It is confidently expected that the coming year will see the beginning of transactions in the coarse grains on our Board of Trade, and a consequent beginning here of a large traffic in them. Better railroad facilities will open the coarse grain regions to Duluth.—Tribune.

DIVERSE OPINIONS.

Many French millers are slow to recognize the superiority of roller over stone made flour, and testimonials in favor of the latter are few and far between; one has, however, we are told by the Millers' Gazette, recently been given by a leading baker which is so plain that it must go a long way to convince the most skeptical. He says: "I have made experiments with roller made flour unmixed with any other class of flour, and in the ordinary manner, and I have obtained four more loaves per sack of flour than when I used ordinary flour. I am moreover, persuaded that if the process of making the bread (which was effected in our usual manner) had been more careful and less hurried we should have had still more and still better bread, for more water would have been absorbed. Roller-made flour can perfectly well be used alone; it is no more difficult to knead, but the process of kneading should be slow in order that the fullest amount of water possible should be absorbed. To sum up and to give only a moderate estimate I should say that the three francs per sack which is paid above the value of the first marks of ordinary stone-made flour is fully compensated by the increased yield and the beauty of the product." These remarks, says our contemporary, are in perfect accord with the opinions expressed by many leading British bakers who have taken the trouble to test the matter thoroughly for themselves.

But this superiority of the roller system of milling to the old French burr system, under all circumstances and with all kinds of wheat, is by no means conceded by all. M. Paul Caens, in a French journal, strongly insists on the superiority of the latter system, for French wheat at least. The writer says the admirable results of the roller system are obtained not by the rolls merely, but by the system, many points of which if incorporated with high grinding with stones, would make the latter method decidedly the better one. To Germany, where M. Caens says the stone-dressers did not understand fine work, the rapid extension of the roller system is due. As to what should be done, the writer says that stones should be retained, but a better dress used; doubling the furrows, depressing the stones in such a manner that the old furrows shall attain a width of 9.7 inch by 1½ inch in depth at most to the eye, and 2¼ to 2½ inches at the skirt. With a proper dressing wheat can be broken down with stones, says M. Caens, much better than by grooved rolls, which have much less grinding surface.

SITUATIONS WANTED.

Advertisements under this head, 25 cents each insertion for 25 words, and 1½ cents for each additional word. Cash with order. Three consecutive insertions will be given for the price of two.

SITUATION WANTED.

By a man who has had fifteen years' experience in running grist and merchant flour mills. Address, Wm. H. WOLLERTON, McElhattan P. O., Clinton county, Penn. 411

SITUATION WANTED.

By a young man who has had 2½ years experience in a feed and flouring mill. Address, G. G. MARVIN, West Hebron, Wash. Co., N. Y. 10

SITUATION WANTED.

A situation to learn the millers trade. Am 23 years old. Best of reference given as to character. Address, FRANK VAN VLEET, Tyrone, Schuyler county, N. Y. 1013

SPECIAL ADVERTISEMENTS.

Advertisements of Mills for Sale or Rent, Partners Wanted, Machines for Sale or Exchange, etc., etc., cost 1½ cents per word for one insertion, or 4 cents per word for four insertions. No order taken for less than 50 cents for one insertion, or \$1 for four insertions. Cash must accompany the order. When replies are ordered sent care of this office, 10 cents must be added to pay postage.

YOU CAN BUY THESE CHEAP.

Three McCully Corn Cob Crushers. The above articles are brand new, in perfect condition, just as they left the factories, and will be sold very cheap for cash. Address S. 30, care THE MILLING WORLD, Buffalo, N. Y. 11

FLOURING AND SAW MILL PROPERTY FOR SALE.

I have two water power flouring mills and two saw mills for sale. All in No. 1 order, and in fine locations for grain, lumber and markets. Persons wanting such property will do well to investigate these. Address, J. H. CRAIG, Baldwin, Jackson county, Iowa. 1114

FOR SALE CHEAP.

Four-run water power grist and merchant mill, with a good custom. All modern improvements to make first-class flour; machinery new; in a good grain-growing section on railroad. Would sell all or one-half. For further information inquire of GILGER & LONG, Hadley, Mercer county, Pa. 812

I HAVE

650 Elevator Cups, 4½x3½,
700 Elevator Cups, 4x3,
For which I have no use, and will sell cheap. They were made by W. P. Myer, of Indianapolis, Ind., and are entirely new. If you want a bargain write me. Address, J. S. K., care THE MILLING WORLD, Buffalo, N. Y. 11

FISKE'S BOLTING REGULATORS

Keep the bolting cloth clean in all kinds of weather and in handling all kinds of stock. Increases the bolting capacity from 25 to 50 per cent., and prevents making specky flour. No shafting, belting or gearing required. Any one can attach it. I have a few of these devices which I will sell cheap. They are brand new. Send for description and price. Address MILL-WRIGHT, care THE MILLING WORLD, Buffalo, N. Y. 11

FOR SALE—SPECIAL BARGAIN.

Two new first class Engine Lathes, each back geared, screw cutting, rod feed, power cross feed compound rest, complete with full set screw cutting gears, large and small face plates, center rest, centers, wrenches, etc., etc. All ready for instant shipment. Sold by reason of change in plans; are of first class make and direct from builders' hands. One 18 ft. bed by 28 inch swing, price \$625. One 18 ft. bed by 20 inch swing, price \$416. Send for cuts, W. E. DREW Manchester, N. H. 94

FOR SALE.

ONE OF THE BEST BUSINESS LOCATIONS IN THE STATE OF PENNSYLVANIA.

For the next 30 days I offer to sell my steam flouring mill, located at Sunbury, Pa., in close proximity to R. R. track, convenient to connect with short switch. The only mill in Sunbury—a town of 7,000 to 8,000 inhabitants and it being a powerful and still growing rail road centre—having 11 different outlets per rail—it is and promises to be one of the finest locations for a flouring mill in the country. Surrounded by a thickly settled agricultural community, from which wheat can be supplied all the year round to supply the demands of the manufacturing capacity of the mill. The mill is in good shape for a stone mill outfit, but can easily be without any serious expense converted into a roller mill. Having a pre-arranged other business on hand I will sell low and on easy terms if applied to soon. Any further information will cheerfully be given by W. C. LYON, Sunbury, Pa. 912



HOW DOES THIS SUIT?

"Cooch's Bridge, Del., Aug. 25, '84.
"Messrs. Thompson & Campbell,
"Philadelphia, Pa.

"Gentlemen: Your machine was sent here against an —, on condition that we should keep the best, and we tried each machine, and are frank to say that if your machine cost us \$500 and the other was offered us as a present we should take yours, as we cannot find a fault with it. The above machine has a capacity of 50 bushels per hour."

We think best not to publish name, but it will be given upon application. Address, THOMPSON & CAMPBELL, Philadelphia, Pa.

BOLTING CLOTH.

Do not order your cloth until you have conferred with us. It will pay you, both in point of quality and price. We are prepared with special facilities for this work. Write us before you order.

CASE MANUFACTURING CO.,

Columbus, Ohio.
Office and Factory, 5th Street, north of Naughten.



PUBLISHED EVERY THURSDAY BY
THE AMERICAN INDUSTRY PRESS
 (LIMITED.)

OFFICES, LEWIS BLOCK, SWAN STREET,
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G. B. DOUGLAS, - - Managing Editor.
 THOS. McFAUL, - - General Agent.

SUBSCRIPTION.

In the United States and Canada, postage prepaid, \$1.50 Per Year, in advance; can be remitted by Postal order, registered letter, or New York Exchange. If currency is enclosed in unregistered letter, it must be at sender's risk.

To all Foreign Countries embraced in the General Postal Union, \$2.25 Per Year, in advance.

Subscribers can have the mailing address of their paper changed as often as they desire. Send both old and new addresses. Those who fail to receive their papers promptly will please notify at once.

ADVERTISING.

Card of Rates sent promptly on application. Orders for new advertisements should reach this office on Tuesday morning, to insure insertion in the week's issue. Changes for current advertisements should be sent so as to reach this office Saturdays.

EDITOR'S ANNOUNCEMENT.

Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or the grain and flour trade.

Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.

This paper has no connection with any manufacturing or mill furnishing business. Its editorial opinions cannot and will not be influenced by a bestowal or refusal of patronage. It has nothing for sale, but its space to advertisers and itself to subscribers.

Entered at the Post Office, at Buffalo, N. Y., as mail matter of second-class.

MILLERS' ASSOCIATIONS.

NATIONAL.....S. H. Seamans, Sec'y., Milwaukee, Wis.
 CALIFORNIA.....F. J. Parsons, Sec'y., Oakland.
 ILLINOIS.....C. H. Seybt, Sec'y., Highland.
 INDIANA.....Jos. F. Gent, Pres't., Columbus.
 IOWA.....J. S. Lord, Sec'y., Ogdan.
 KANSAS.....O. W. Baldwin, Sec'y., Ottawa.
 KENTUCKY.....W. H. Wherritt, Sec'y., Lancaster.
 MARYLAND.....J. Olney Norris, Sec'y., Baltimore.
 MICHIGAN.....W. Hibbard, Sec'y., Grand Rapids.
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 PENNSYLVANIA.....Landis Levan, Sec'y., Lancaster.
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 NEW YORK.....J. A. Hinds, Sec'y., Rochester.

OUR CLUBBING LIST.

NOTE—You can save money by availing yourself of the following offers. You can please every member of your family by accepting one or more of the following offers. To save money, and at the same time make the family happy, ought to be the main object of every married man's life. See how you can do this.

Take these for Yourself.

THE MILLING WORLD, per year.....\$1.50
 WITH
 The Builder and Woodworker.....(\$1.00 per year) 2.00
 American Architect, weekly.....(6.00 ") 6.50
 American Architect, monthly.....(1.75 ") 2.75
 American Machinist.....(2.50 ") 3.50
 Mechanical Engineer.....(2.00 ") 3.00
 American Agriculturist.....(1.50 ") 2.50
 The Country Gentleman.....(2.50 ") 3.50

Take these for your Family.

THE MILLING WORLD, per year.....\$1.50
 WITH
 Harper's Magazine.....(\$4.00 per year) 4.50
 Harper's Weekly.....(4.00 ") 4.70
 Harper's Bazar.....(4.00 ") 4.70
 The Century.....(4.00 ") 4.50
 Frank Leslie's Illus. Newspaper.....(4.00 ") 4.50
 Frank Leslie's Popular Monthly.....(2.50 ") 3.50

Take these for your Children.

THE MILLING WORLD, per year.....\$1.50
 WITH
 St. Nicholas.....(\$3.00 per year) 4.00
 Harper's Young People.....(2.00 ") 3.00

Readers of "The Milling World" will confer a favor upon the publishers, and derive material benefit themselves, by mentioning this paper when opening correspondence with advertisers. Drop us a postal card when you have written to an advertiser, give us his name, and then we will put you in the way of getting the benefit. Don't forget this.

THE Detroit Board of Trade is on hand with its statistical tables for the year 1884, and the early issue of the report demonstrates the activity of that body. As a matter of course it gives due prominence to the wheat and flour trade of the city and we are treated to some interesting figures. Out of a total cereal production of 70,000,000 bushels in Michigan, Detroit received 11,615,871 and shipped 8,858,356 bushels. As a flour market, however, the City of the Straits, seems to be a failure, as the table of receipts show the arrival in 1874 to be 568,238 barrels, 449,278 in 1881; 259,422

in 1882; 176,191 in 1883, and 122,739 in 1884. On the other hand the shipments were 314,941 barrels in 1874; 270,225 in 1881; 228,487 in 1882; 197,534 in 1883 and 146,742 barrels in 1884. These figures demonstrate better than anything the gradual decline of Detroit's flour market. Compared with this constant decrease in the arrival and shipment, the milling industry of that city, represented by nine establishments at present, has been growing and its capacity is now larger than ever before, amounting to 249,914 barrels during the past year, of which 153,312 barrels were shipped and 96,602 barrels were for home consumption. The production of flour in 1883 amounted to 246,964 barrels, that of 1882 to 188,120 barrels. The lowest price for No. 1 white wheat in Detroit during the past year, was recorded on December 6, as 75c. The general price record for red wheat was the same as that for white wheat during the earlier part of the year; while during June to August the white was the highest, by 10 to 12c.; the red was from 2 to 4c. above the white during October and part of November, but November closed them near the same points and since then their values have not differed more than one-half cent. The corn trade of Detroit during 1884 has not been as good as anticipated, but yet it held its own as compared with the most prosperous year in its history, 1888. This latter year recorded an increase of 75 per cent. in the receipts over former years, and the Detroit people confidently expected a corresponding increase for 1884, but in this they were doomed to disappointment; the total receipts of corn amounting to 1,677,582 bushels as compared with 1,893,087 bushels in 1883; while shipments during the corresponding periods decreased from 1,572,627 to 1,424,140 bushels. The Detroit Board of Trade looks upon the future as quite hopeful, and not at all discouraging, for the country never was so well supplied with food, nor as rich in all that constitutes real wealth as to-day. "A panic to unsettle values, does not seem possible as they are so low that they cannot be forced to much lower points. Our currency is substantially as it has been, and money is plenty, though not freely circulating just at present. With all these elements of real wealth and prosperity existing, it cannot be that hard times and such marked depression in business can exist very long."

AND now we are told that the project is on foot again to transform, by the aid of Uncle Sam's pocket book, our Erie canal into a ship canal capable of passing vessels from tide water to the upper lakes. We really thought that the project had been dismissed long ago, but it appears to be resurrected, for a bill to that effect is introduced into the House of Representatives, asking for the modest little sum of \$8,000,000 to aid in the work. As the National Treasury is filled to overflowing, and the income exceeds the expenses, some avenue of escape for the surplus has to be provided, but of all the schemes invented for that purpose, the transformation of the Erie canal into a ship-canal, appears to us to be the wildest, especially when we read that by the way of special inducements, this bill provides for the free passage through the projected canal of all American "war ships." Well, it is perfectly safe to predict that this bill will be doomed to oblivion, and that the great statesman whose giant intellect originated the scheme will not see his name handed down to posterity, as the great benefactor of the commerce of New York State and the father of the Erie ship canal.

In spite of the general decline of prices, throughout the country, railroad freights have not been influenced very materially and

the reductions made at some few points in rates during the past season have been so small and few as hardly to deserve mention. During the past four weeks, however, popular opinion has been aroused on the subject and steps were inaugurated to effect a reduction of railroad freights in correspondence with the general decline of values. Naturally the railroad managers waited as long as possible, but they had to submit finally as seen in the action of the roads running into Milwaukee and Chicago reported last week. The latest news in this connection reaches us from St. Paul, and states that the Omaha western division has reduced freights to an extent which will average about 5 cents per 100 lbs. Of course the reduction was made for the ostensible purpose of "helping the farmer to dispose of his wheat." It is too well known that the railroads are operated solely in the interest of the farmer; this is such a convenient form of dodging the admittance of "cruel necessity," and admitting in as mild a manner as possible that the roads are largely dependent upon the shipment of grains, for which they have hitherto charged higher prices than the occasion demanded. Nevertheless the reduction is made and will undoubtedly result in an increased activity in the grain movements of the West and Northwest.

THE Chicago grain receivers association discussed the question of "bills of lading" at their annual meeting on Jan. 16. Attention was called to the two bills now before Congress in relation to this question, but as they were devised only for ocean transportation, the association expressed its desire that these measures should be so amended as to apply to railroad transportation as well as to the lake marine. The time chosen for the discussion of the subject was favorable, because the railroad freight agents' association, at a meeting three days previous had agitated the same question, and it now looks as if some uniform system of bills of lading will be devised with satisfaction to all those concerned. While the present laws are considered sufficient under ordinary circumstances, yet many cases occur involving points not covered by the existing laws, and additional legislation is considered necessary. After the question of bills of lading is settled satisfactorily and the various measures asking for a uniform system of grading are disposed of, the commerce in cereals ought to be satisfactorily protected on good sound business principles.

THE expenses necessary for the Agricultural Department at Washington have been cut down to \$600,000—\$100,000 less than last year. Of course what do the majority of our wise law makers care about the investigations made under the auspices of the department for the benefit of the country; perhaps only a few of them have ever heard about the brilliant series of chemical analyses of flours made during the past year by the chemists of the bureau, and if they have it is immaterial to them. Sums devoted to scientific purposes are always spent in the most economical manner, and no "jobbing" is allowed in their management, consequently the interest in such appropriations is limited; more so when fat river and harbor bills have to be voted upon. It is to be hoped that the future will at some time reverse this order of things in such a manner at least, that the sums devoted to scientific research will not be cut down to figures so low that only the bare existence is insured, and no new lines of research can be attempted for the want of the necessary funds.

THE treaty of commerce and navigation between the United States and Prussia, dating back as far as 1828, stipulates that "No higher or other duties shall be imposed on the importation into the kingdom of Prussia

of any article, the produce or manufacture of the United States, than are or shall be payable on the like articles being the produce or manufacture of any other foreign country." From this it appears that any attempt at present to increase the cereal tariff would violate the existing treaty; but after all the discussion raging on the subject at present in Germany may not amount to more than the lengthy articles that appeared every week in the leading papers of America on the question of protection and free trade before the presidential election. Periodical agitation of the subject is very useful for the purpose of diffusing knowledge among the people at large as to the merits of the two systems of political economy, and Germany needs it as badly as America.

EVERY merchant and manufacturer is forced by necessity to take an interest in the proposed national bankrupt law, now pending before the Legislature, but it seems that the influence brought to bear upon its eventual passage is of the wrong kind. Congressman Hammond, of Georgia, in opposing the bill, tells us that those gentlemen interested in its passage and who wanted to see it become a law, acted from selfish motive only, while those whose influence was exerted to prevent its passage were prompted by the same motive, but that the general interest of the measure was ignored. This statement unrolls a pretty picture, indeed. Selfishness the leading motive on both sides, that means one side for some honest law, the other side for the present system with its "preferences," and other lawful back doors wide open for frauds. No wonder that between the two conflicting interests the bill will be doomed to oblivion, at least for the present.

INTERESTING news may soon be expected as results from experiments now being made by the German War Department on the nutritive qualities of different provisions. A company of soldiers will be fed on a prescribed diet, be subjected to regular field service for certain hours of the day, and careful notes will be made as to the endurance and physical condition of the men during this time. It may be that some new facts with regard to the nutritive qualities of different foods will be brought to light, upsetting or verifying some everywhere accepted theories.

AN International Congress of Agriculturists will meet during the summer at Budapest, to devise means for alleviating the sufferings of European agriculture. It will be interesting to note how the Hungarian and Russian grain producers, who depend upon export, and are therefore free traders, will be able to reconcile their interests with that of the German and French protectionists sufficient to work with mutual advantage.

THE failure of John J. Cisco & Son, of New York, and Oliver Brothers, of Pittsburgh, during the past week, are to be deplored, not so much because they are likely to involve others, but because their occurrence will seriously interfere with the return of confidence in the future. The query, "Who will go next?" is now agitating the public.

THERE is an absolute dearth of news in the milling trade. Manufacturers of milling supplies and machinery are, if we may credit reports, fairly busy, while inquiries from millers concerning machinery are notably increasing. Does this mean the approach of better times?

REPORTS from Chicago give it as a sign of reviving business that on January 7 a membership in their Board of Trade could be had for \$2700, while three days later it sold for \$3000.

ESTABLISHED 1856.

EUREKA GRAIN CLEANING MACHINERY | GENUINE DUFOUR BOLTING CLOTH**OVER 18,000 MACHINES IN USE.**

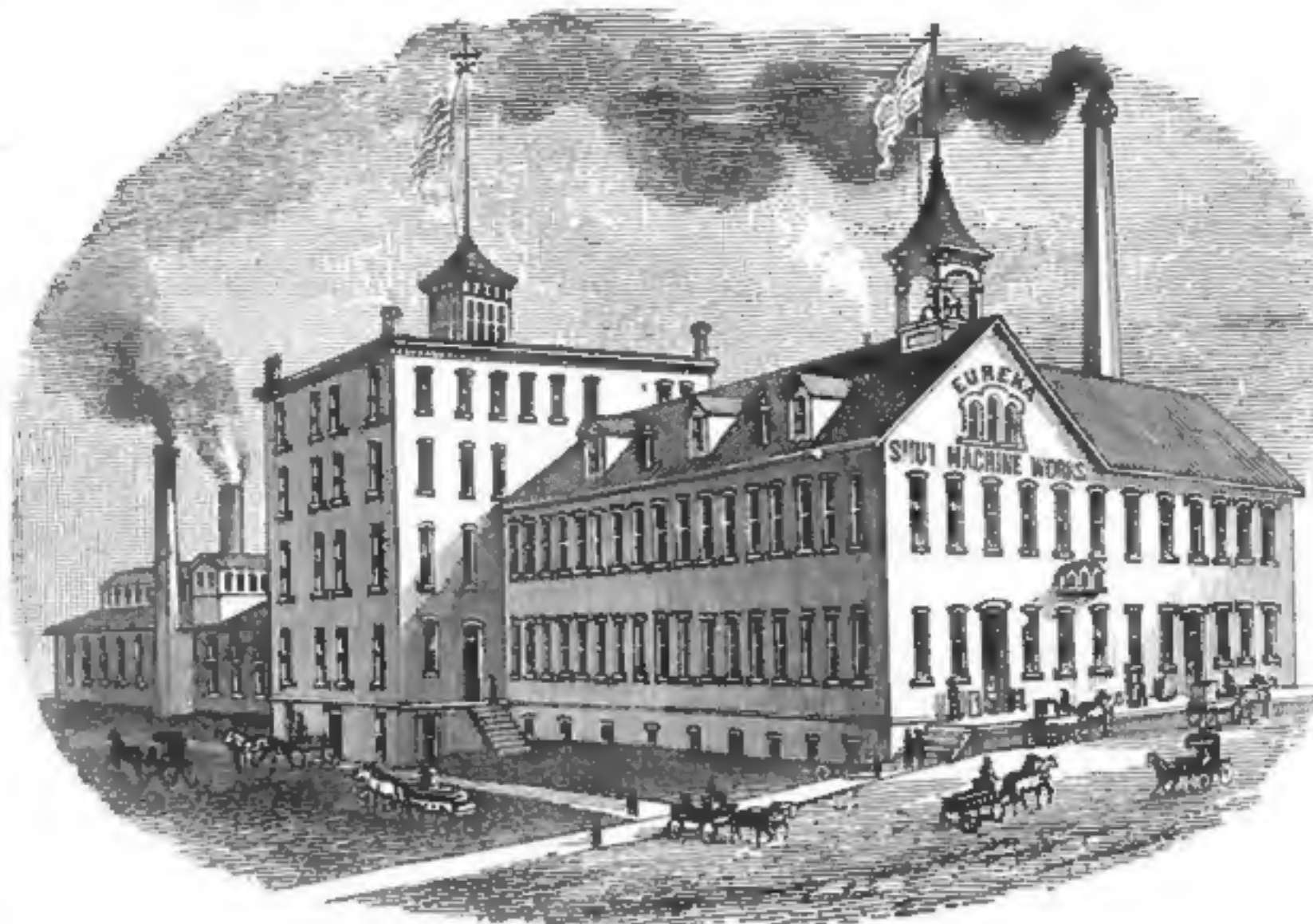
OUR LINE COMPRISES

The Eureka Separator,
The Eureka Smutter and Separator,
Eureka Brush Finisher,
The Eureka Magnetic Automatic Separator,
Silver Creek Flour Packer.

Our establishment is the oldest, the largest and most perfectly equipped of its class in the world, and our machinery is known and used in every country where wheat is made into flour.

HOWES & EWELL,
SILVER CREEK, N. Y.

European Warehouse and Office: 16 Mark Lane, London, E. C. Gen. Agency for Australian Colonies and New Zealand. Thos. Tyson, Melbourne, Victoria.



We handle this justly celebrated cloth in large quantities, and can fill all orders upon receipt. For such as may prefer a cheaper grade, we offer our

ANCHOR BRAND BOLTING CLOTH.

Guaranteeing it to be equal in every particular to any other cloth on the market, except the Dufour. We have handled it for years, have sold thousands of yards of it, and know it will fully sustain our representations.

Send For Samples of Cloth, Our Style of Making Up, and Prices.

HOWES & EWELL,
SILVER CREEK, N. Y.

PLEASE BEAR THIS IN MIND.

No matter what your requirements may be we will always be ready to meet them; and at prices as low as strictly first-class material and workmanship will permit. We do not publish letters commending our machinery. If such letters were received by us at periods widely separated one from the other, it might so surprise us as to make us believe the milling public should be made conversant with the contents thereof, but such is not the case; we have too many such letters to permit of publishing them, unless we make invidious comparisons, and that is hardly the thing to do. No we do not publish such letters, but we do furnish the best roller mills in the market, viz: **ODELL'S CELEBRATED ROLLER MILLS**, and we furnish them in such a variety of styles and sizes as to admirably meet the requirements of the smallest as well as of the largest mills. Further than this, we furnish plans for the erection of new, or the remodeling of old mills, (all plans being made under the immediate, personal, supervision of Mr. U. H. Odell, the well known builder of some of the largest and most perfect milling establishments in the country) and we fully and emphatically guarantee everything we do for you. This is all we can do, and it is all you require, isn't it? Write us.

STILWELL & BIERCE MFG. CO., DAYTON, O.**WOLF & HAMAKER, MILL BUILDERS AND CONTRACTORS,**

— MANUFACTURERS OF —

Wolf & Hamakers Latest Improved Middlings Purifier, Bolting Chests, Patent Feed for Rolls
AND THE KEISER TURBINE.

AGENTS FOR THE ALLIS ROLLER MILLS, BOLTING CLOTH

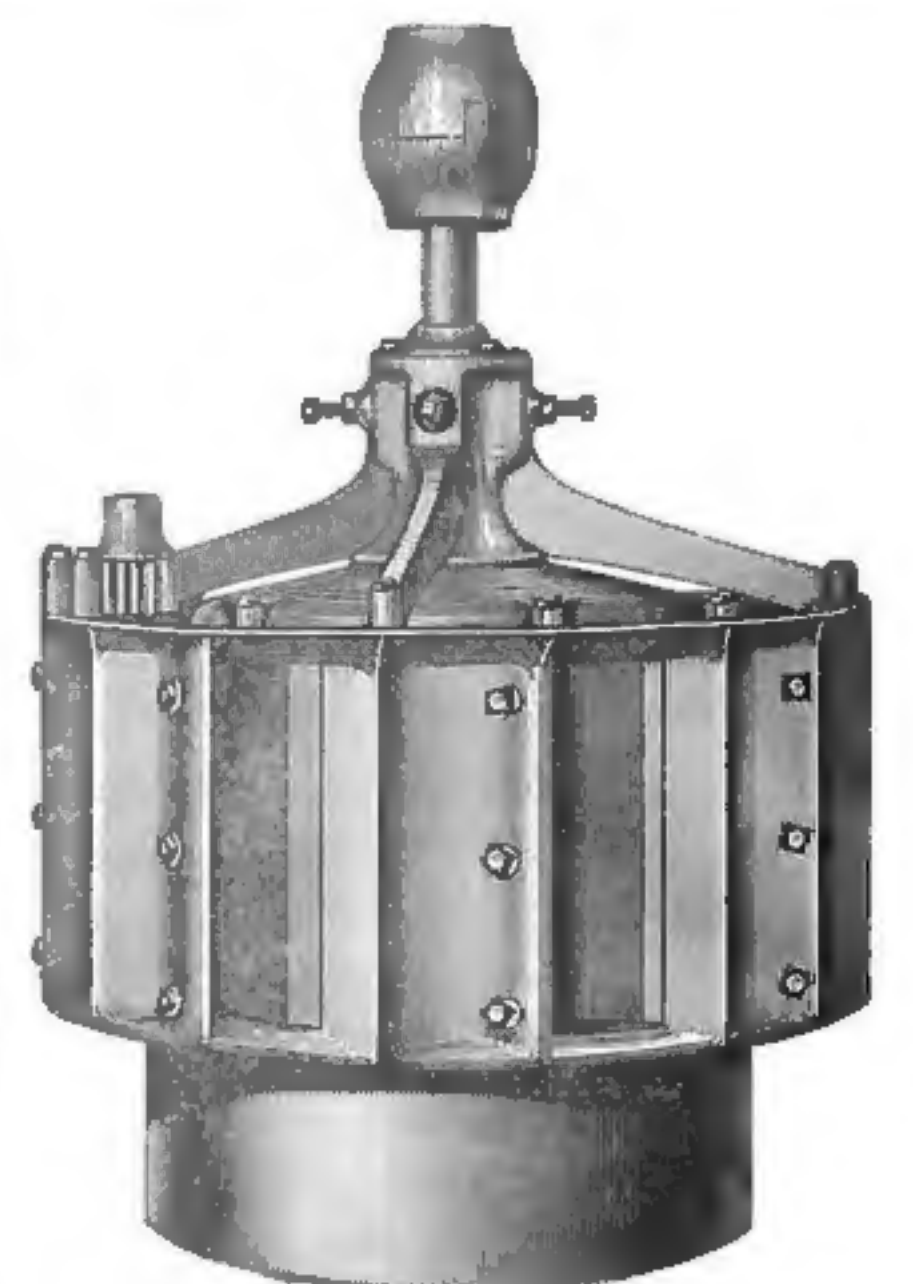
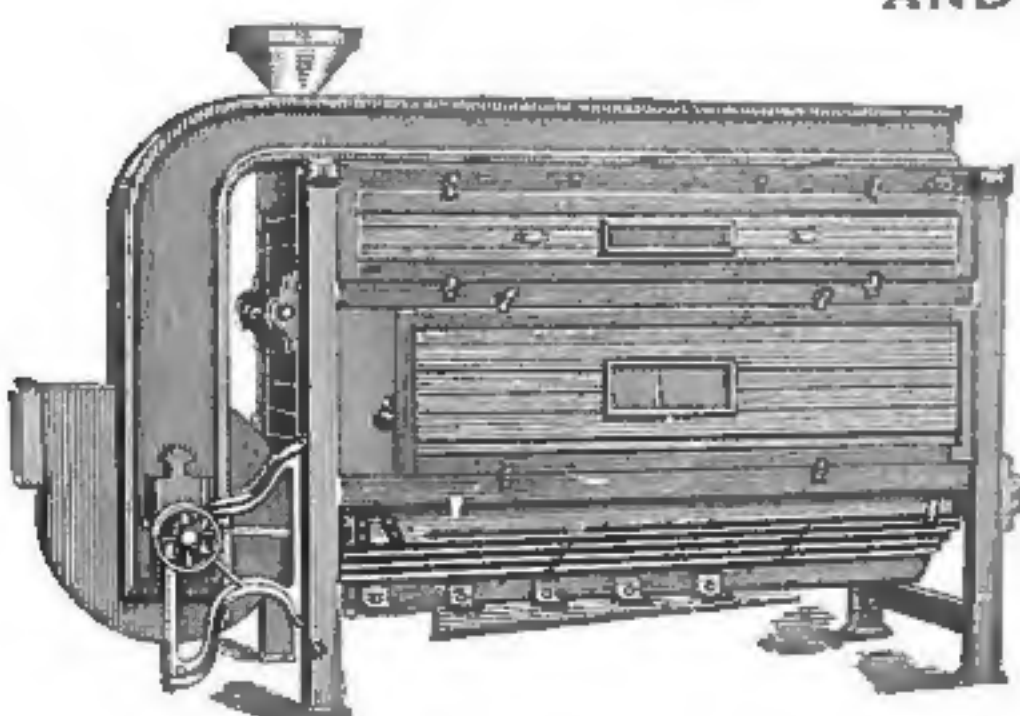
AND MILL FURNISHINGS OF EVERY DESCRIPTION.

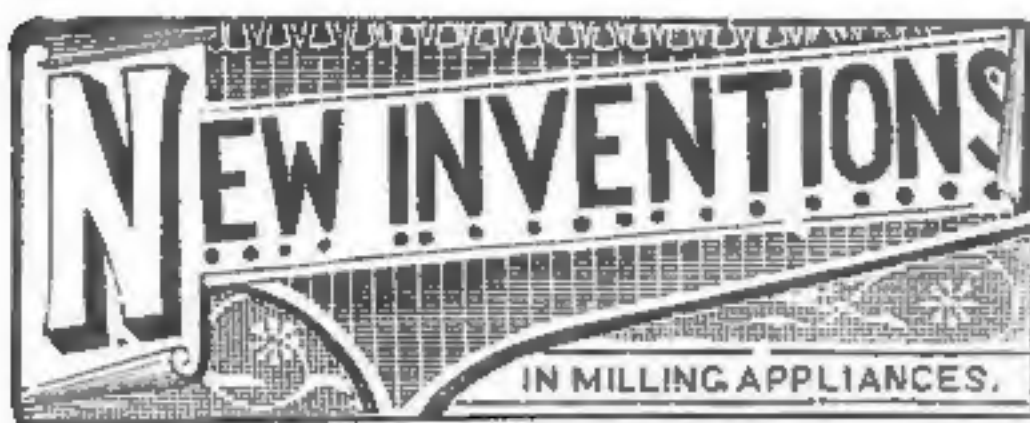
Wolf & Hamaker's Purifier is now manufactured as a single or double sieve machine to suit the wants of all millers. A perfect cloth cleaner. Results guaranteed to equal any machine for the work.

THE KEISER TURBINE.

ONLY BEST WHEEL BUILT Examine its construction and be convinced. The only wheel that really distributes and applies the water correctly and scientifically at all stages of gate, and at the same time closes water-tight and has an easy working balanced gate. **GET THE BEST**

We are the agents for the E. P. Allis Roller Mills and we are at all times prepared to furnish plans and estimates and to contract for the erection of first-class mills of any desired capacity of from 50 to 500 barrels. Parties contemplating new mills or the remodeling of old ones will find it to their interest to write us for prices and terms.

WOLF & HAMAKER, CHAMBERSBURG, PA.



FLOUR-BOLT.

Letters Patent No. 310,572 dated January 13, 1885, to James C. Frazier, of Vassar, Michigan. The frame and casing of this machine may be of any usual or approved construction. Vertical partitions are arranged at both ends a short distance inside of the casing, and provided with circular openings to receive flanges of the reel-heads. The upper conveyer box has its tail end constructed of a downwardly extended portion, of the partition at that end of the machine, the end at the head end of the conveyer box consisting of a separate part arranged farther from the front end of the casing and upon the opposite side of a cross girt, from that to which the front partition is attached. The bottom of this conveyer box, as well as the bottom of the lower conveyer box, is provided with a number of cut offs. The beaters may be mounted upon spider arms or disks attached to the beater-shaft. The horizontal extension of the feed spout or hopper is, by preference, circular in cross section. A worm is attached to the beater shaft and operates to discharge material from the hopper into the interior of the reel. A distributing plate is mounted upon the beater shaft a short distance from the inner end of the horizontal part of the hopper. The reel heads each have a central opening with a flange or shoulder, another flange, shoulder, or rib, of greater diameter, and an inner flange, shoulder, or rib, of less diameter, all of these flanges or shoulders being circular, the inner one fitting closely the outer opening in the partition. Frictional supporting and driving rollers are keyed to a shaft in such position as to engage with the outer faces of the flanges on the reel head. Anti-friction guiding rollers are arranged upon opposite sides of each head. These guiding rollers are mounted upon the inner ends of shafts, and are keyed thereto, the shafts rotating in boxes or bearings. A bevel pinion is keyed to the projecting end of the beater-shaft, meshing with a bevel wheel, mounted on the upper end of an upright shaft. A friction driving wheel, the hub of which is grooved to receive arms, which project horizontally from a vertical plate, is secured to a vertical post of the frame work by means of bolts, which pass through a vertical slot of such length as will permit the friction driving wheel to be let down so far that it will engage with the opposite or lower side of its engaging wheel. At the opposite end of shaft carrying the anti-friction rollers before alluded to, is a set screw, mounted in a cross girt or other suitable support, with its inner end bearing against the end of said shaft in such manner that by turning the screw in the proper direction the driving wheel can be caused to impinge upon the bevel wheel with such force as to rotate the reel. By properly shifting the position of the friction or bevel driving wheel the speed of the rotation of the reel can be varied, as can the direction of its rotation. Bevel gears are mounted upon the vertical shaft, and the conveyer-shaft for driving the conveyers. Motion is communicated to the beater shaft by belting its pulleys to any suitable motor. Longitudinal bars or ribs are attached at their ends to the outer flanges or ribs of the reel heads. A brush extends longitudinally of the reel, its central core or base being journaled at its ends and supported upon vibrating arms. These may be either pivoted to some portion of the frame-work or casing of the bolt, or they may be hung upon a shaft which extends the entire length

of the machine, and is mounted at its ends in partitions. In operating this reel or bolt the material which is fed in by the worm is caught by the rotating, corrugated, or ribbed plate and properly distributed to the beaters at the head end of the reel. When desired, an opening may be made in the feed spout of hopper, with a slide or other cover, for the admission of air in suitable quantities.

FLOUR-BOLT.

Letters Patented No. 310,772, dated Jan. 13, 1885, to John F. Ayres, of Alloway, New Jersey. This invention relates to bolts and to that class of said inventions commonly known as "rotary bolts." The bolt is adapted to receive the middlings at one end, and is so formed as to feed same toward its opposite end as it revolves. This may be accomplished by forming the bolt with an increasing diameter toward its lower end, or by inclining said bolt, both of which forms are common in the art. This bolt is provided with screen-cloth having a mesh gradually increasing from end to end, so that the stuff bolted by different portions will vary in fineness. The receiving or feed end of the bolt is provided with a head-block, through which the spindle of the bolt-shaft turns, the said block being secured rigidly to the framing of the machine. A feed-pipe, extends from this block into the bolt and serves as a means for feeding the middlings thereinto. A hood is secured with receiving end of the bolt, and has a flange, extending inward beyond the periphery of the head-block, so as to practically inclose said block within the bolt. This pipe or tube may be extended upward beyond the head-block and connected with a hopper, or the middlings may be otherwise fed thereinto, as desired. The bolt is arranged in the bolting-chest, the bottom of which is provided with discharge-spouts, arranged in a series extending the full length of the chamber and of the bolt. The receiver is divided by a central partition, into two troughs, both of which are arranged, under certain circumstances, to receive the stuffs from the spouts the division being arranged midway of each of said spouts. These spouts may be varied in number, the stuff discharged through one spout will be of a different grade from that discharged through another. It is desirable to distinctly separate the middlings-discharge at the various points of the bolt. This is done by discharging the spouts into different troughs. A convenient way of doing this is to throw the discharge of the adjacent spouts into opposite troughs, and that of the alternate spouts into the same spout, the intervening space occasioned by throwing the intermediate spout into the other trough serving to distinctly mark the line between the several heaps in each trough. This may be done in several ways. The trough may be permanently fixed to so operate: but it is preferred to so construct the device that the discharge of any of the spouts may be thrown at will into either of the troughs. This may be accomplished by a board, pivoted at its lower edge, centrally below the spout and above the partition of the receiver. The upper edge of this board is adjustable against either side of the spout, so as to effectually discharge the middlings passed through said spout in either one desired of the troughs. These boards are provided with plates on their opposite ends, arranged to operate on opposite sides of the discharge openings. Difficulty is sometimes experienced in a rotary bolt by reason of the bolt not running true, owing to some unequal wear or other disarrangement of the gudgeons or spindle. To obviate this, the gudgeon is formed separate from the shaft, and has its shank or tang inserted in a suitable socket, formed from the end of the shaft. A mortise, intersects this socket at the inner end of the latter and serves to permit the operation of a retaining-nut screwed on the

rear end of the gudgeon. The outer end of the socket is made to fit the gudgeon, while its inner end is larger than the corresponding end thereof. This may be accomplished by tapering the gudgeon downward to its inner end, or by increasing the diameter of the socket toward said end, and would give the same result in either case. The inner end of the gudgeon is movable. By moving or adjusting this end of the gudgeon and securing it at the desired points its outer or movable end will be turned up. Set-screws are turned through the shaft, and their points bear against the inner end of the gudgeon. Four of these screws are used. By turning these the gudgeons may be readily adjusted and trued up. It is frequently desirable to couple together the shafts of two or more bolts, and sometimes to form the shaft of the bolts in sections coupled together, this latter for the purpose of enabling the adjustment of the gudgeon. To effect this, the gudgeon is provided with an angular stem, fitted to enter the central opening of the thimble which is provided with a flange or flanges, fitted to extend over the adjoining shaft or section, and to be secured thereto by means of bolts, or in other suitable manner desired. By this construction the sections or shafts may be quickly coupled or uncoupled as desired.

PROCESS OF REDUCING GRAIN.

Letters Patent No. 310,709, January 13, 1885, to August Christian Nagel, Reinhold Hermann Kaemp, and Adolf Wilhelm Franz Georg Linnenbrugge, of Hamburg, Germany. This invention relates to the production of flour from cereals, especially from wheat, by the so-called "high-grinding" or "gradual-reduction" process; and its object consists in an improved method of carrying out the comminuting operations, of the said process by means of disintegrating-machines such as are described in the United States Patent specification No. 228,669, or of other machines of the same kind. Whenever the granular substances—as, for instance, grain or middlings—are exposed to the action of the beating-pins of a disintegrator, it is of material importance for the efficiency of operation of the machine that the number of blows imparted by the pins to every grain, as well as the power with which the pins act on the same, be in due proportion to the size of the grains, as well as the power with which the pins act on the same be in due proportion to the size of the grains, small pieces requiring more blows, or such as have greater power, than when the pieces to be broken are of larger size. For this reason in this invention two or more disintegrators having on their co-operating disks a varying number of rows of pins or beaters, or operating in addition thereto at different relative speeds of the beaters are employed, and the disintegrators are used in such order that each following machine through which the material to be comminuted is passed has on its co-operating disks a greater number of rows of pins, so as to impart to every grain an increased number of blows, or that the number of rows of pins and also the relative speed of the co-operating rows is greater, in order to bring about an increase in the number as well as in the power of the blows. The disintegrators themselves, being known machines, do not require to be described. Any machines of this kind, whether having but one pair of co-operating systems of pins or whether provided with two pairs, may be used for the purpose; besides, the relative speed of the systems of pins working together may be attained by causing the disks, with the pins, to revolve in opposite directions, or by maintaining one disk stationary while the other one revolves, or by driving both in the same direction, but at different speeds. It may also be mentioned that the pins may be cylindrical, prismatic, conical, or other suitable shape.

These variations in arrangement are, however, also known, and therefore require no further description. Though four reductions, as supposed in the foregoing, have been found practically to be advantageous in most cases, the method can just as well be applied to or carried out by a smaller or even a greater number of reductions, and therefore the process is not to be confined to four reductions, or to the number of rows of pins limited, as shown in the drawings. It may further be stated that in exceptional cases it may be desirable to use the same number of rows of pins and the same relative speed in repeated reductions. Moreover, this process may be advantageously adopted where the first breaks are accomplished by rolls or other gradual reduction machine, the subsequent breaks—two, three, or more—thus alone involving this process.

A FINE GRAND JURY

A history of the criminal practice of Arkansas would not only be a volume of bloody tragedy but would contribute largely to humorous literature. Years ago, when Col. W. P. Grace was prosecuting attorney of a southern circuit, he was determined, in view of the inexcusable leniency which prevailed, to effect a reform by enforcing on the minds of grand jurors the necessity of punishing criminals. On one occasion when court met at Arkansas Post, the colonel was particularly desirous of making a good record. The grand jury, described as an "onery lookin' set o' fellers," occupied a negro cabin, near the court house. "Now gentlemen," said Colonel Grace, "expediency demands that you should organize and get to work just as soon as possible." A man named Jaquins was elected foreman. "Now," said the colonel, "who will act as clerk? Won't you?" addressing the most intelligent looking member.

"Kain't read nor write," replied the man.

"Well, won't you?" addressing another.

"Would if wa'n't fur one thing."

"What's that?"

"I ken read, but I kain't write wuth a continental dam. Wush I could, but I kain't."

"I am certain you will," addressing an old fellow.

"No, I b'leve not to-day. I kain't spell nuthin nohow."

"Oh, go on an' sarve, Uncle Caleb," said the man who could not write worth a continental. "Go on an' sarve, I say. You don't haf to be able to spell. All you've got to do is to read and write a little."

"Well, gentlemen," remarked the colonel, "to expedite matters, I will act as clerk until you can get some one else."

He wrote down their names and called the roll, requesting each man when his name was called, to state whether or not he knew of any violations of the law.

They answered "no," until Grace's patience became sore.

"Why, gentlemen," said he, "you know very well that several men have been killed in this county since the last term of court, do you know anything about that?"

"Wall," drawled a long, dyspeptic looking fellow, "I did see a man t'uther day what 'lowed that a feller had been laid out down thar, but I wuz sorter busy at the time an' didn't 'vestigate, but I reckon he's dead, fur arterwards I seed 'em diggin' a hole out in the orchard whar his folks does all thar plantin'."

"Is that all you know about it?"

"Wall," with another long drawl, "b'out all I can think uv right now. Mout think of more though, if you'd gimme time. Lemme see. Wall, I reckon, in reason they must've killed him, fur I seed a wagin with a long box in it drive up to the house, an', yes, airtwards, I seed 'em drive to the orchard. Reckon the feller must've been killed."

"I don't doubt that," replied the colonel. "What we want to get at is the manner and circumstances of the killing. Do you know by whom and how he was killed?"

"Wall, a short time afore I seed the box in the wagon, the man Blythe, whut I have every reason to believe wus in the box, had a 'spute with a feller named Miller."

"Did Miller kill him?"

"Wall, Miller he said that the first time he seed him he 'lowed to shoot him."

"Miller killed him, then?"

"Wall, I don't know, but Miller is a powerful truthful feller. Never heerd nobody 'spute his word. A mighty apt hand with a fuzee, too, Miller is. Mouter not killed him, fur it ain't fur me to say. Blythe didn't owe me nuthin'."

"It is for you to find out, though, for you are here to see the law enforced."

"Yas, that's whut the boys was jes' tellin' me, an' I reckon it's so. Whar is Miller now, boys?"

"He's left the country," some one replied.

"Wall, colonel, I reckon he's the man what done the killin'. In fact, I know he is."

"No, he ain't left the country," said some one else, "fur I seed him, day afore yistidy."

"Wall, colonel," continued the evasive grand juror. "I ain't so certain, sence I come to think about it. Don't want to put the matter too strong."

"There's another case," declared the colonel. "An infernal scoundrel, that ought to be hanged, killed his brother over on White river the other day. Do any of you know anything about that?"

An old brown "jeansed" fellow, who had said nothing, arose and replied:

"Yas, an' I'm the man that done it."

"Mr. Foreman," said the colonel, "adjourn the jury until to-morrow morning. This is the worst crowd I ever saw."

That nigat every member of the grand jury, with the exception of the foreman, were found engaged in a game of poker. The following morning, they were marched into court and indicted. When Colonel Grace had completed his business, he went to the sheriff and spoke to him concerning his fees.

"What fees?"

"The fees for convictions. Don't you understand your business?"

"I don't know anything about fees."

"Where are those men that were arrested the other day?"

"Gone home, I reckon."

"Why didn't you put them in jail?"

"Jail? They've got no business there."

"Why?"

"I've dun rented it out to a feller fur a livery stable. Folks in this country don't want no jail."

"Well, sir, I shall sue you on your bond."

The sheriff laughed. He had never heard of a bond.—Arkansaw Traveller.

SHUTTING OUT AMERICAN BREADSTUFFS.

In the agitation now being carried on among the Agrarian party of Austria-Hungary the final end and object of the movement that has gained such headway on the Continent are becoming more and more apparent. The agitation has for its end nothing less than the absolute shutting out of American breadstuffs from Europe, or at least from Germany, Austria and Russia. The protective duty simply, which Germany proposes to adopt, and which Austria-Hungary is determined to introduce, suffices no longer. The land owners want to be freed from all competition, and, unhindered by the laws governing the markets of the world, regulate the price of grain to suit themselves. This is to bring about the salvation of the agricultural interests. It is not surprising that such pretensions should arise, for the population is completely infected by reactionary ideas and by the confusing and misleading programmes of the Socialists, the anti-Semites and the old mediæval spirit of the guilds, or *zunftwesen*: and the Government itself consist of conservative aristocrats of agrarians. The Taaffe Ministry, which has to find a solution for the problem now before it, of disencumbering the peasant proprietors by the State, can also give its assent to the new continental coalition. This is all the more probable, keeping in mind the fact that the elections to the Reichsrath are approaching. The aristocratic party has now two tempting baits for the peasant—relief from his present burdens and encumbrances by the State and the shutting out of American competition. Everything is possible in a

land where the lack of capital is the cause of the present crisis; where, in spite of this, a campaign is opened against mobile capital; in a State where the dynamite of the anarchists makes itself felt every week, in which the highest aristocrats mingle and commune with the anarchist leaders. There everything is possible.

WHEAT IMPORTS OF ENGLAND.

THE imports of wheat into the United Kingdom this season are smaller than for several years; of flour, the imports are larger than last year, about the same as in 1882, and double the quantity in 1881. Comparisons of imports and sales of home-grown wheat are shown in the following in cwt.s.:

	1884.	1883.	1882.	1881.
Wheat imp. . .	15,827,197	19,914,122	22,829,899	20,112,324
Flour imports .	4,711,142	4,640,259	4,737,895	2,363,847
Home wheat .	15,915,480	16,010,280	12,892,500	13,180,000

Total, cwt.s. . . 36,458,819 40,464,661 39,459,704 35,657,171

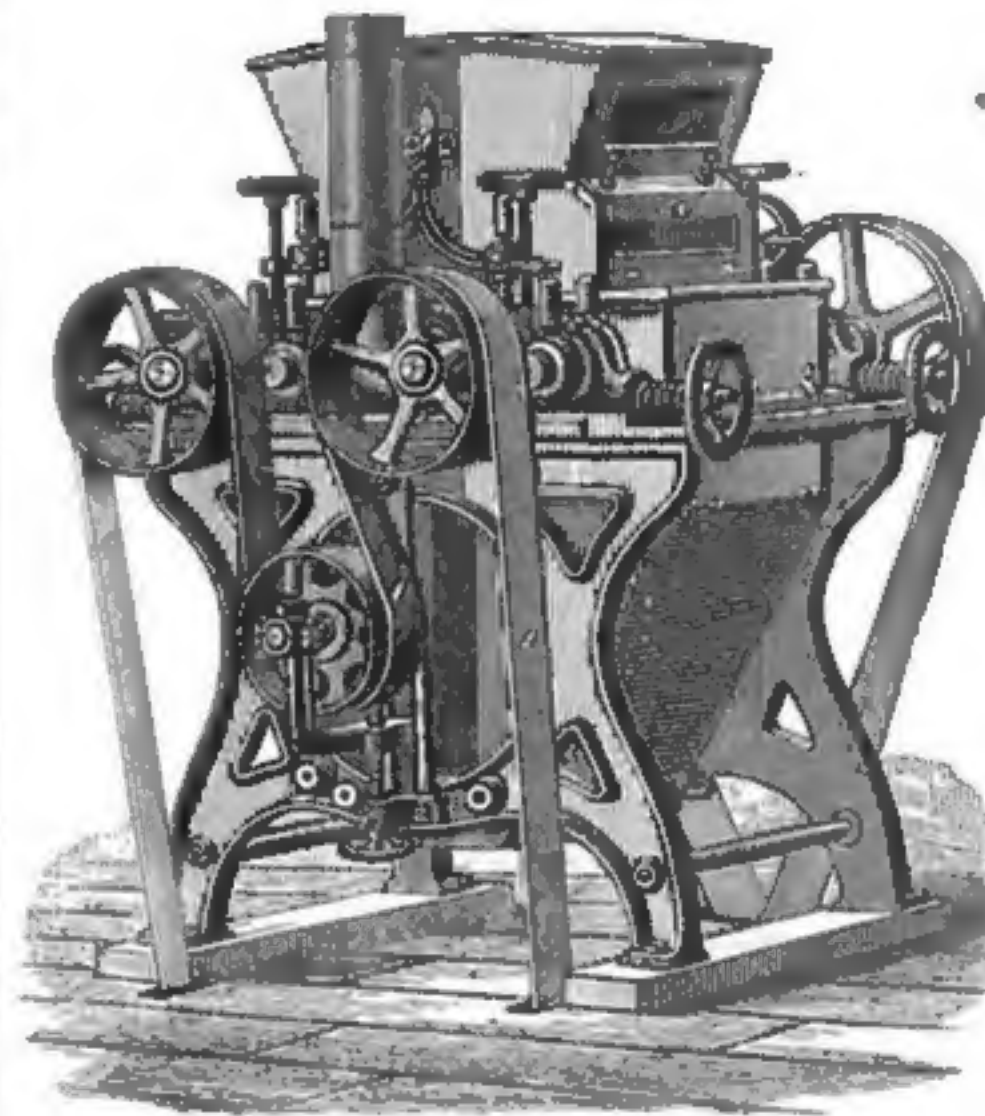
The average price of sales of home grown wheat in the English markets this season has been 32s. 6d. per quarter; in 1883, 40s. 5d.; in 1882, 41s. 4d.; in 1881, 47s. 8d.



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Positive movement of the rolls. We will furnish details upon application. Send for our Circulars before purchasing any Roller Mill.

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Milwaukee, Wis., Nov. 29, 1884.

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Jackson, Michigan.**

Gentlemen: Enclosed please find draft for two Smith Reels. We have now run the Reels 60 days, and are well pleased with same, and must say that we are surprised by the amount of work they do. We are bolting at the rate of 10 barrels per hour, which nearly all passes through upper Reel, and leaves but very little for the lower Reel to do.

Yours truly,

C. MANEGOLD & SON.

SCIENTIFIC AND MECHANICAL

FLOWING LAND FOR MILL PURPOSES.

THE case that was recently determined by the United States Supreme Court, as to the constitutionality of the "Mill Acts" of the several states, affects the rights of many mill privileges to overflow adjoining land. The decision sustains this right, and upholds the validity of the state acts wherever they are in force. These acts are founded on the doctrine of eminent domain, and have been maintained in all the states except Vermont, Michigan, Alabama and Georgia. The underlying principle of "eminent domain" is the right of a government to appropriate private property to public use; but while this has been admitted in this country, as well as in England, it is subject to rules in equity entitling the party who is deprived of his property to compensation. The object of the law is to encourage the erection of mills, and its importance has been long recognized, even as a part of our colonial history. The necessity that first gave it a position of consequence was the dependence that had to be placed on water privileges for motive power, and unless the state government was vested with such authority the manufacturing needs of a community would be jeopardized by the caprices of individuals. The application of the acts was first directed to the building of saw and grist mills, but, in time, it was extended to all manufacturing enterprises. The exigency that existed in the early days of factory life is now felt only in a very limited way, as steam power can be utilized nearly as well, and in many instances better. As all laws of this kind are presumed to be instituted for the advancement of the public good, it may soon become a serious question, in this era of steam, if the public good is subserved by a continuation of them, even if a just compensation is allowed, and thus deprive a person of his property without his free consent. We are inclined to think, says the "Boston Journal of Commerce," that the time will come when the jurisprudence of the state will be materially changed in this particular.

SEWAGE GERMS.

A curious experiment was shown a year or two ago, in which a long glass tube was filled with earth, and sewage poured in at the upper end. If the tube was long enough, perhaps six or eight feet, the liquid issued from the bottom clear and pure, its dissolved and suspended organic matters having been oxidized by the soil. If, however, before pouring in the sewage, a little dilute chloroform were allowed to filter through the earth, sewage subsequently applied passed through the tube without change, the oxidizing action of the soil being completely suspended. After some hours, or days, the soil regained its oxidizing quality. This experiment was believed to show that the oxidation of organic matters in sewage was something more than a chemical reaction, and that it depended, at least to a certain extent, on the presence of small living organisms, whose activity could be temporarily suspended by an anæsthetic, and with it the oxidation of the sewage. This theory has now been confirmed by additional observations, and the little creature which converts into fixed and harmless salts the putrefying impurities of such sewage as it can reach is believed to be a micrococcus somewhat resembling the yeast plants. Many and varied tests have been made to determine the conditions under which the disinfecting microbe lives and acts, and a good deal has been learned about its habits.

It is found that it flourishes best, and is most efficient, at a temperature of about ninety-eight degrees Fahrenheit, nearly the temperature of the blood. At higher or lower temperatures its action becomes more feeble, and ceases altogether near the freezing point, or above one hundred and thirty degrees. Experiments to show its distribution in a clay soil, prove that it is most abundant in the upper six inches, but is found to a depth of a foot and a half. Below that depth it cannot live, and soil taken more than eighteen inches below the surface has hitherto always failed to induce any change in nitrogenous solutions to which it was applied. These experiments cast a great deal of light upon many questions of sewage disposal by sub-soil or surface irrigation, and further tests, made with some reference to this, would be easily made, and extremely valuable. It is found, for instance, that nitrogenous solutions, in order to be acted upon by the oxidizing ferment, must be alkaline, acid liquids remaining unaffected. This observation shows at once that where sewage is to be purified by irrigation, chemical wastes must be kept out of the drains. Normal house sewage is generally slightly alkaline, and in good condition for conversion, but the admission of the acid or poisonous wastes from a dye-house, metal-working shop, or manufactory of any other kind might render the sewage of a whole town incapable of purification.

A COSTLY EXPERIMENT.

The British and Colonial Manufacturer states that "a boiler attendant from the neighborhood of Bury, some time ago discovered a means of preventing incrustation, which, although possibly quite as valuable as many others which have been offered to the public, we fear, judging from the result of his own experiments, is not likely to make his fortune. Although using very impure water he had been very successful in preventing his boiler from scaling. He got a quantity of spirits of salt, in which he dissolved a few oyster shells, and then introduced the mixture in his boiler, with the result that the plates were kept quite free from hard scale. This remarkable discovery, being reported by the inspector at headquarters, resulted in an urgent request for a thorough inspection being received by the firm from the insurance company. When this was made, the inspector found the plates of the boiler pretty well cleared of scale, but a whitish deposit had settled in the cross water tubes, or Galloway tubes, and on these being struck with a hammer from the fire side, a hole was easily knocked through every tube in the boiler. The muriatic acid, for which 'spirits of salt' is only another name, neutralized only to the extent of the calcium salt formed by the oyster shells which had been dissolved in it, appeared to have settled principally on the inclined surfaces of the cross water tubes, and corroded them internally to such an extent that every tube in the boiler required renewing. It is not long since that we heard of an engine man who had been trying the effect of oil of vitriol (sulphuric acid) in his boilers."

* * The annual volume of the United States Fish Commission has just been issued from the Government Printing Office. It embraces, in addition to reports of the work, extracts from numerous letters received by Prof. Baird in relation to discoveries and observations. One correspondent, Prof. Samuel Gorman, of Cambridge, Mass., writes seriously respecting the existence of the sea serpent. He says: "I have no idea that we shall ever find a huge unknown lung breathing saurian as a foundation for the stories. The existence of types of extinct sauria of various geological periods is possible, but improbable. The geological record is very incomplete. In the main it

is the shoal water or shore and surface forms of the sea, and the land forms, that have been recorded by geology. And this record has become indistinct or entirely obliterated by changes in the rocks in the early formation. The earliest forms were marine and the depths were the original centers of divergence. The earliest forms of animals in regard to solidity were like those now living in great depths, i. e., they were gelatinous, flabby, or loose in structure, and not bony and hard or such as would be preserved in the rocks. In consequence, it seems as if our hopes of solutions of problems of origin and divergence, of knowledge of the beginning itself were best placed on the results of the study of animals in conditions most similar to those of the beginning, on the result of deep-sea researches. Within a few years our imperfect apparatus has secured from great depths a host of strange creatures, but none of the largest or strongest. In fact we have had scarcely more than mere suggestions of what may exist, and, in view of them, should not be surprised at anything that may come up. If there is a sea-serpent yet unknown to scientists, it is likely to prove a deep-sea fish.

* * England has 65 square miles of colony to the square mile of her own area; Holland, 54; Portugal, 20; Denmark, 6.80; France, 1.90; Spain, 0.86 square miles. The area of the British colonies is nearly 8,000,000 of square miles—rather less than the area of the Russian Empire, including Siberia and Central Asia; but if the native feudatory states in India, amounting to 509,284 square miles be added, over which England exercises as great control as Russia does over much of the territory under its sway, together with that of the United Kingdom itself, 120,757 miles, then the area of the British Empire exceeds that of the Russian Empire by about 200,000 square miles, and it covers within a fraction of one-sixth of the whole land area of the globe.

* * Not taking into account atmospheric absorption, Sir William Thompson has computed that we receive from the full moon a light equal to that which would reach us from twenty-seven thousand million million candles spread over the moon's eastward hemisphere painted black. If allowance is made for the loss of moonlight in passing through our atmosphere, the number of candles must be much greater—probably reaching forty thousand million million. The same eminent physicist has further calculated that, if the moon's side were painted black, and covered with normally burning candles standing closely packed in square order, the light would appear to us to be about the same in quantity as that which we now receive.

* * During the last official year the attaches of the office of Inspector of Buildings in Boston examined 652 steam boilers in the city limits, and it is interesting to note the number of firms whose boilers were represented. The following table shows the kinds of boilers in use:

Horizontal tubular	412
Upright "	119
Locomotive "	42
Sectional	72
Flue	5
Cylinder	2
Total	652

* * A firm which makes a specialty of the erection of shafting, states that its experience teaches that the loss of power due to improper conditions in the line shafting amounts to fifty per cent. of the engine power employed, and that the defects most commonly found are as follows: Shafting too light for the duty, crooked shafting,

hangers too far apart, hanger bearings too short, pulleys too heavy and not properly balanced, hangers which are not adjustable and not self-adjusting, and sometimes filled with spurious Babbitt metal, and improper proportion between two pulleys connected by the same belt.

* * Miguel and Freudenreich have examined the air for bacteria at various altitudes, and find that the percentage of bacteria diminishes with the altitude. The proportion of bacteria in 10 cubic metres of air in different places was found to be as follows: Rue de Rivoli, Paris, 55,000; Montsouris Park, 7,000; Room in Hotel Bellevue (Thun), 600; Outside the same hotel, 500 metres above the sea-level, 21; Lake of Thun, 560 metres above the sea-level, 8; 2,000 metres above the sea-level, 0.

* * The world's harvest time for wheat extends the whole year round. In November last occurred the wheat harvest of Peru, North Australia and South Africa. December was the wheat harvest time of Chili, Argentine Republic and South Australia. In January comes New Zealand. In February and March comes Egypt and British India. In April comes Northern India, Syria, Cyprus, Persia, Asia Minor, Cuba and Mexico, and so on.

* * The center of our population has for a century moved westward with remarkable regularity, beginning at a point on the east shore of Maryland and reaching one ten miles west of Cincinnati. It is calculated, however, that progress in that direction is stopped, in consequence of the rapid growth of Atlantic coast cities and the advancement of some of the Southern States.

* * Quite successful experiments in distributing the electric light to great distances have been made in connection with the Turin electrical exhibition. A Siemens dynamo of thirty horse power generated a current which was simultaneously used by three electric light systems distributed over a circuit of twenty-four miles.

* * At a meeting of the Royal Geological Society of Cornwall, England, Professor Warrington Smyth drew attention to the temperature of deep mines, especially those of Nevada, the great heat of which he ascribed to chemical changes going on in the lode itself.

* * The proposed expedition of Prof. Nordenskjöld to the South Pole has been postponed until 1887.

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Percentage.

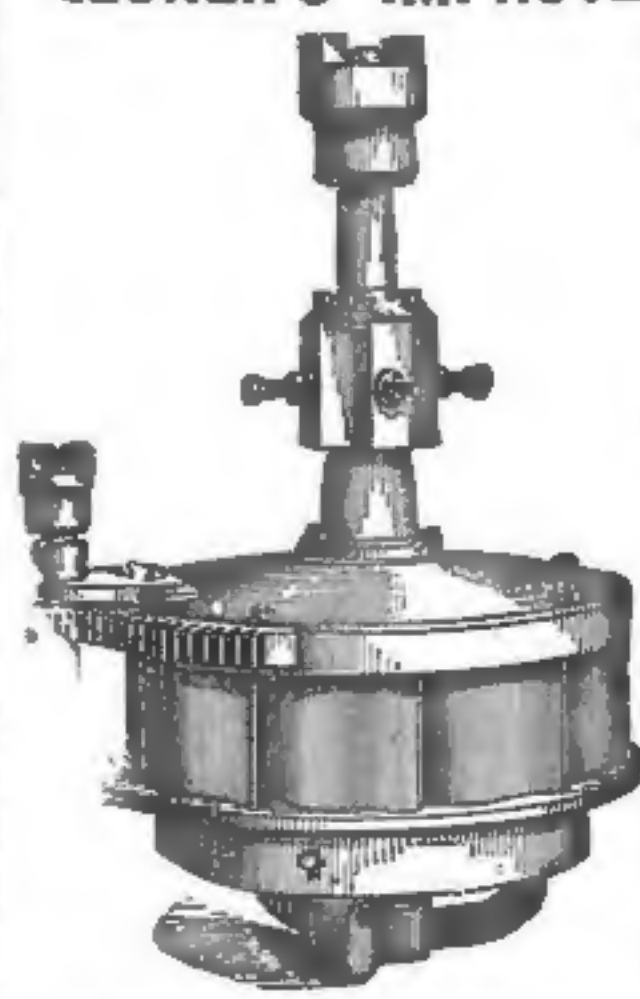
Full Gate.....	86.29
¾ Gate.....	86.07
½ Gate.....	81.90

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Size Wheel.	Head in Ft.	Horse Power.	Per Cent Useful Effect
15-inch.	18.06	30.17	.8932
17 1/2 in.	17.96	36.35	.8930
20-inch.	18.21	49.00	.8532
25-inch.	17.90	68.62	.8584
30-inch.	11.65	52.54	.8676

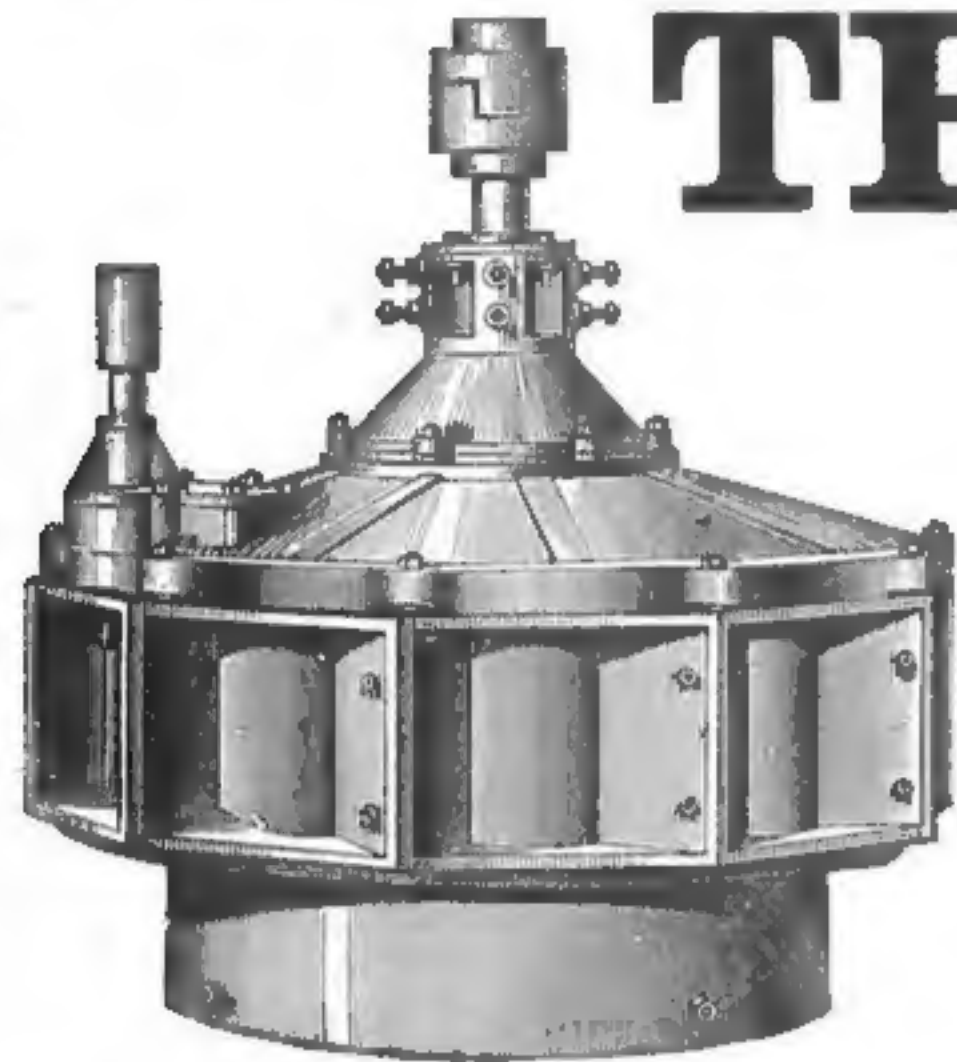
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Such results, together with its nicely-working gate, and simple, strong and durable construction, should favorably commend it to the attention of ALL discriminating purchasers. These Wheels are of very Superior Workmanship and Finish, and of the Best Material. We also continue to manufacture and sell at very low prices the

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From the Records of Actual Tests at the Holyoke, Mass., Testing Flume:

PERCENTAGE OF EFFICIENCY.

	Full Gate.	3/4 Water.	1/2 Water.	1/4 Water.
34 Inch Wheel.	.8486	.8416	.8202	.8008
34 Inch Wheel.	.8306	.7910	.7700	.7008
34 Inch Wheel.	.8078	.7578	.7375	.6796
30 Inch Wheel.	.8000	.8011	.7814	.6880

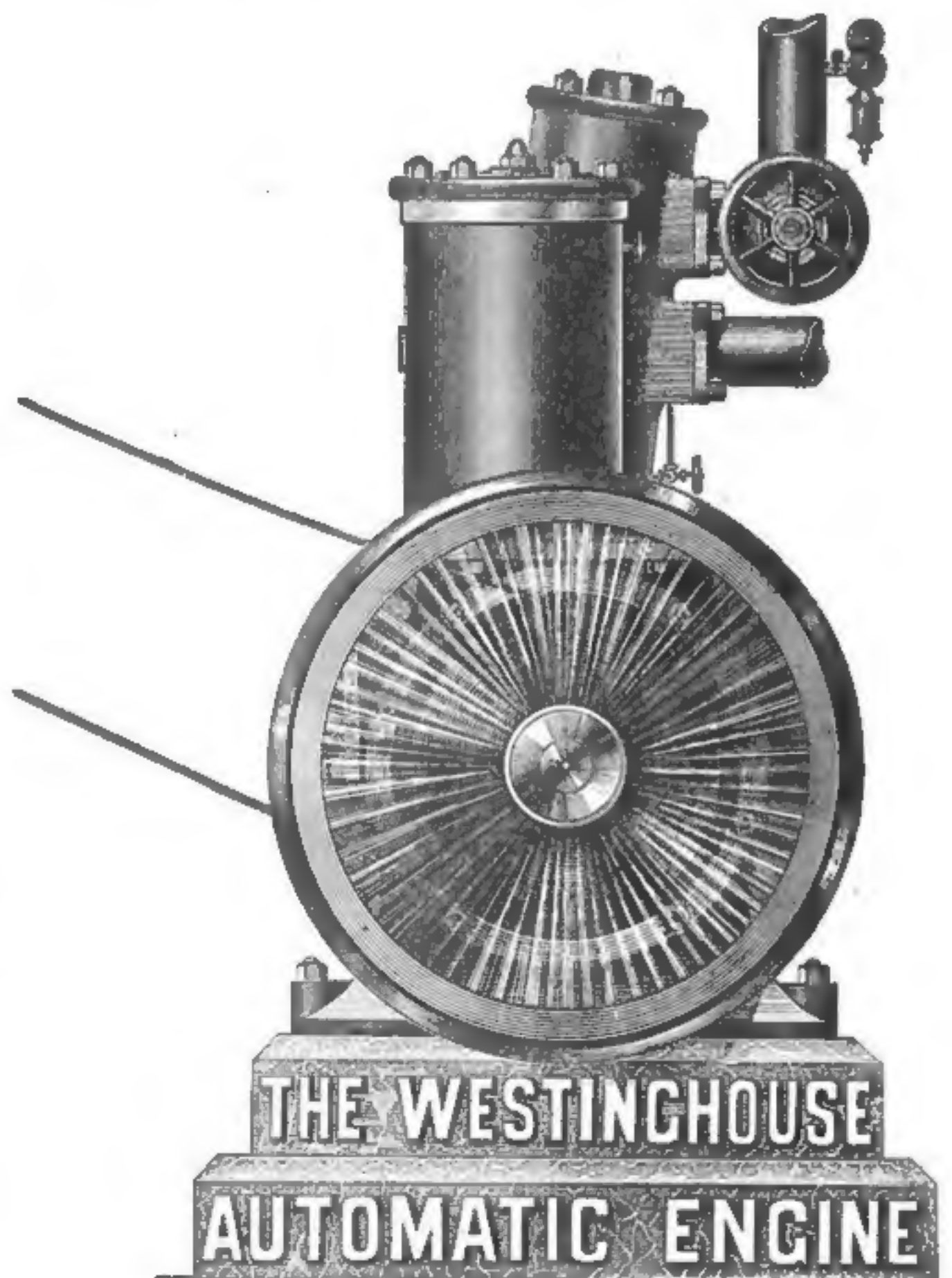
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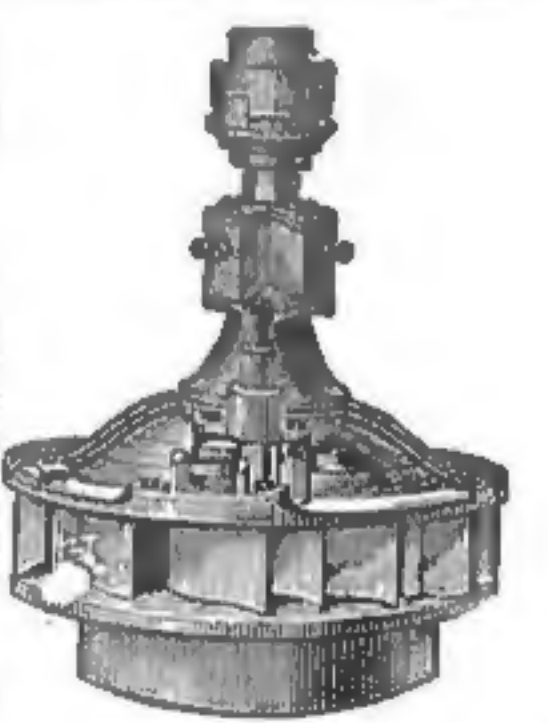
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This wheel is acknowl-
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Made of Best Materials, and in the Best Style of Workmanship.

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From 1 to 20 feet diameter, of any desired face or pitch, moulded by
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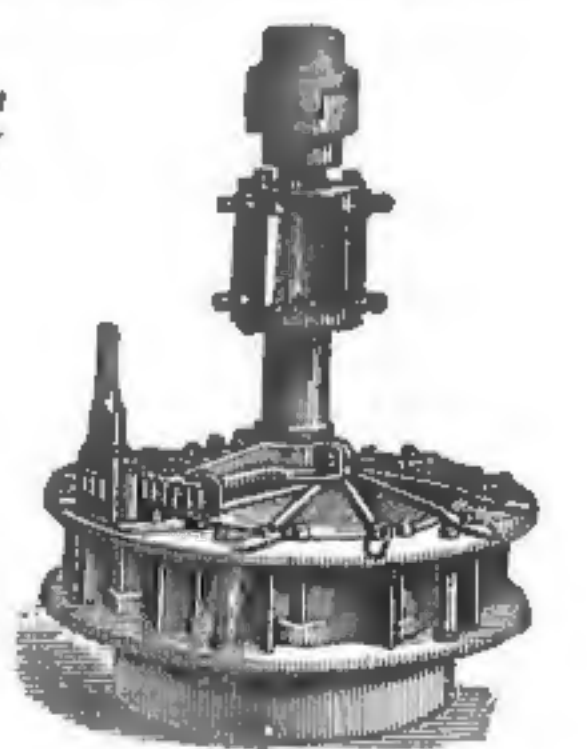
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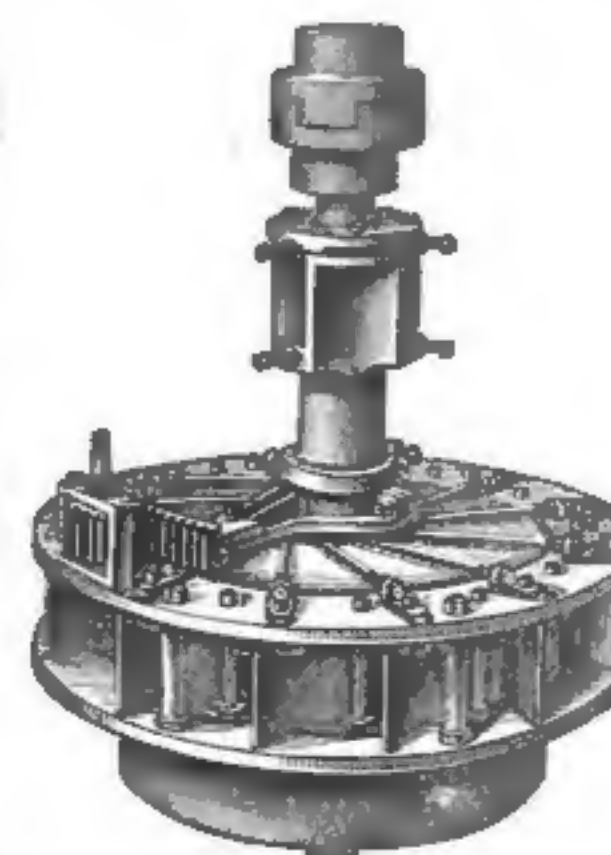
LEFFEL'S WATER WHEEL

MADE BY JAMES LEFFEL & CO.

The "OLD RELIABLE"

with improvements, making it the

**MOST PERFECT TURBINE
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Lowest Heads used in this Country. Our new Illustrated Book sent free to
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Those improving water power should not fail to write us for New Prices
before buying elsewhere. New Shops and New Machinery are provided for
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110 LIBERTY STREET, N. Y. CITY.**



Notes from the Trade.

At Big Stone, Dak., Jan. 13, an elevator and 6,000 bushels of grain were burned. Loss, \$14,000.

There is a fine opening for a flour mill at Newton. The vicinity produces good wheat in abundance.

It is reported the people in and near Newmarket, Texas, are praying for some one to come and build a flour mill.

Corsicana, Texas, is in need of a good mill. The town will give financial aid. Address Drane, Johnson & Drane.

H. H. Hand & Co., of Morgan, Ky., have commenced the erection of a flour mill; will complete it about July, 1885.

The flour mill of Nat Palmer, at Strong Point, Cumberland County W. Va., was burned January 12, with a loss of \$1,000.

Over 500,000 bushels of wheat changed hands on the Duluth Board of Trade Monday, Jan. 12, the largest ever reported in that city.

At Brucefield, Canada, Jan. 15, a fire occurred consuming the large new grist mill owned by A. Smith, together with a quantity of grists.

Toronto Board of Trade Examiners have been interviewing the Minister of Inland Revenue about the grading of Manitoba and Ontario wheat.

The wheat receipts at Minneapolis for the past year were 29,286,320 bushels, and the shipments 4,582,480. The flour shipments were 5,285,182 barrels.

At Covington, Ky., Jan. 19, David Keafer's Son's flour mill caught fire. The whole establishment was about destroyed. Loss, \$60,000; insurance, \$40,000.

A. J. Patterson, of Union Depot, Tenn., is erecting a fine flouring mill at Home Depot, East Tennessee, with a capacity of 1000 bushels of wheat per day.

The new elevator at Northfield, Minn., was opened for business on the 2d inst., under the superintendency of W. T. Law. It has 25,000 bushels capacity. About 8,000 bushels of wheat have already been received.

The committee on rivers and harbors of the House awaits the reports of the Missouri and Mississippi river commissions in order to perfect the bill. It is said that the amount will be limited to \$10,000,000 and that the bill will be reported early this month.

Hominy milling is an insignificant industry compared with the wheat milling trade of this country, and yet it is not such a small matter either. The capital invested is considerably more than two million of dollars, and the product of the four-score mills, perhaps, now in operation, annually, twice as much more.

Report was received at Chicago recently of the selling of a lot of flour in Liverpool which has a curious history. It was shipped from Chicago, and on arrival was refused as not equal to the quality ordered. It was placed in store for a few days and then sold at 15 per cent advance on total cost.

The large flouring mill of Schornden & Co., at Okauke, Wis., was destroyed by fire at an early hour January 16. Loss, \$30,000; insurance, \$10,000, in the following companies; Millers' National, \$5,000; Millers' Mutual, \$2,000; Northwestern National \$2,000, and Milwaukee Mechanics' Mutual, \$1,000.

The Agricultural Department makes the following unofficial estimate of the crop yield for 1884: Corn, yield, 18,000,000,000 bushels, acreage, 69,000,000; wheat, yield, 500,000,000 bushels, acreage, 38,000,000; oats, yield, 570,000,000 bushels, acreage 21,000,000; barley, yield, 50,000,000 bushels, acreage, 2,500,000; rye, yield, 25,000,000 bushels, acreage, 2,000,000.

Fire was discovered Saturday morning, January 10, in the elevator of the Northwestern Elevator company at Walcott, Minn., the building being entirely destroyed, with the contents. The wheat-buyer at the elevator, whose name was not learned, perished in the building. The Manitoba and the Village hotels on the northern side of the track, are also in ruins.

Near Millport, Warwick Township, Pa., Jan. 14, Samuel Kafroth's large flour mill was totally destroyed by fire. The flames originated in the wooden gearing, as is supposed, from a hot shaft. The mill contained 7,000 bushels of wheat, of

which 4,000 belonged to Mr. Kafroth and the balance to neighboring farmers, and 40 barrels of flour. The loss is \$20,000, and the insurance \$7,000.

Articles of incorporation of the Mazeppa, Minn., roller mills are published. The incorporators are Albert Scheffer, St. Paul; Henry Ahneman, Pine Island; Jesse McIntire, Theodore B. Sheldon, and John C. Pierce, of Red Wing. The date of said organization is the 7th day of January, 1885, and it shall continue for thirty years. The principal office is at Red Wing, and the capital stock of said corporation is the sum of \$100,000.

The flour carrying trade is a very considerable one for the Intercolonial Railway: 132,000 barrels of flour arrived at Halifax by that road during 1884. At St. John, the receipts by same road were 189,500 barrels. Beginning with 7,256 barrels in January and reaching 16,000 in March, the quantity varied from 21,625 barrels in May to 13,000 in September; October and November were the heaviest months, *i. e.* 24,875 and 27,750 barrels respectively. December showed only 17,250 barrels.

The large steam flouring mill of R. Kearney, at Greenfield, Iowa, was burned Jan. 10 with all its contents. The mill was new and had only commenced operations a few weeks. It was a first-class mill, thoroughly fitted up with everything necessary for its business, and will be a great loss both to Mr. Kearney and the town. Nothing is known of the origin of the fire, though it is supposed to have caught in some way from the engine fires. The loss is about \$10,000. It was insured for \$5,500.

Marcus Johnson, of Atwater, Minn., who has had excellent opportunities to observe there anent, says from 35 to 40 per cent. of last year's wheat crop is in first hands on the Breckinridge division of the Manitoba as far north as Morris, and on the Fergus Falls division as far as that city. In the Red river valley he thinks about 20 per cent. remains unsold. In the Minnesota valley he deems 50 per cent. a fair estimate of holdings. Farmers will speedily feel the recent rise, and on the Manitoba are now getting 66 to 70 cents per bushel.

According to the Toronto Mail, the annual report of the Montreal Board of Trade indicates that its business, notwithstanding the talk about depression, is quite satisfactory. The year 1884 shows a reduction below 1882 of 9 per cent. in value. But there has been a decline in prices which more than balance that. The volume of trade has therefore been larger than it was in the highest year. The export trade has been marked by a falling off in grain not quite equal to that at other ports, but an increase in flour, lumber and cattle. The Board is of the opinion that "Canada has not experienced the wave of depression in so great a degree as have England and the United States."

Nairn's oatmeal mill in Winnipeg is now in operation. It is the most extensive and complete mill of the kind in the province, says the Free Press, and an important addition to the industries of Winnipeg. The cost of the building and machinery has been about \$15,000. The building is 50x50 feet and has four stories including the basement. The engine is of sixty horse-power, and is from the establishment of Inglis & Hunter, Toronto, who have also supplied part of the machinery, other portions being imported from Scotland. The boiler is supplied with water from a well sunk to a depth of ninety-nine feet. The building is heated with steam, pipes being placed all through it at considerable expense.

A wheat man who has been stationed in North Dakota for the past six months, says that there is less than 25 per cent. of the wheat crop still unmarketed, and of this proportion some will be kept for seed. He estimates the decrease in acreage for next year as fully 20 per cent. The land unused will be left in fallow for the year, as the farmers are not in the condition to put in other crops. My informant is disgusted with the whole system of northwestern "farming" as it is called. He tells me he has seen many a wheat raiser haul a load of grain to Grand Forks, and take back to his farm the whole value of the load in butter, eggs, vegetables and fresh meat. Until the residents of that section learn to raise something besides wheat at cheap rates and good grades will not make them over prosperous. The past year has done a good deal to teach them that their prosperity lies in diversified agriculture.

A case of some interest to the members of the Chicago Board of Trade was decided Monday (January 5), by Judge Wilson in the Appellate Court. A contract was made July 27, 1883, between two parties for 5,000 bu new No. 2 barley, seller September, but when delivery was tendered it was refused, and suit brought to recover the value of the grain. Between the time of sale and the time of delivery the grade and description of "No. 2 barley" was changed by the Board of Trade,

and on this account the purchasers refused to accept it. Judge Wilson held that the purchasers were not bound to accept the grain unless it was the same as that called for by the contract of purchase. The contract could only be interpreted by a reference to the rules of the board, as "No. 2" of itself meant nothing. The rule in force at the time of sale required barley of a certain kind and grade, and that kind and grade only could be offered for delivery. The barley tendered was not of that quality, and the purchasers were not bound to accept it.

Winnipeg, (Manitoba) Special Telegram: W. W. Ogilvie, the grain king of Winnipeg, being interviewed as to why he had closed his mill there and his mills in Ontario and Quebec, said that since the season began 600,000 barrels of American flour had been shipped into the Dominion principally for consumption in the Province of Quebec. He was unable to compete with Minneapolis millers, for they were able to have wheat delivered in their mills at 60 cents per bushel of a quality which was identical with what he was paying 72 cents per bushel for. He said these Minneapolis millers were able to pay the duty—50 cents a barrel—and still undersell him. The mills, he said, would be set in operation just so soon the Minneapolis millers advanced their price of flour a trifle, which would be sufficient to shut them out of the Eastern market. Questioned as to the quantity of wheat his firm had purchased in the province and territories this year, Mr. Ogilvie said that before the close of navigation they had secured 1,000,000 bushels, 600,000 of which had been sent to Montreal to be ground. The balance was all stored in Port Arthur. Since then the firm has been able to secure almost a second million bushels.

A copy of the Jackson, Mich., "Patroit" is before us from which we gather some rather interesting information touching the extent of the business of the G. T. Smith Middlings Purifier Co. A reporter, undoubtedly of herculean proportions, got little M. W. Clark in a corner and pumped him. We give a portion of the interview, simply premising it with the statement that Mr. Clark expects to go to England in April to look after the company's business there. Mr. Clark said in reference to this:—"Our business there has been rapidly increasing since Mr. Smith introduced our machines about four years ago, and has been neglected so far as the company's personal attention is concerned, notwithstanding which it has grown to such an extent that it now absolutely requires careful personal attention from some one connected with the company who is thoroughly familiar with the milling process adopted here." In reply to an inquiry as to the extent of the foreign business of this concern, the reporter was shown the order-book by Mr. George Sherwood, superintendent, and among the large orders received within the previous three weeks noticed the following: Germany, 75; France, 26; Argentine Republic, 7; Italy, 13; Moscow, Russia, 7; Australia, 50; England, 70. Mr. Clark further stated that although not entirely familiar with the actual shipments from the works he had observed only normal activity in the shops the week previous, when the shipments were 84 machines. When surprise was expressed that the company could build machines in this country, and ship them in their complete form to Europe, Mr. Clark said: As you passed through the shops you noticed the complete and systematic organization of our forces, and the conveniences for easily handling this class of work. You also undoubtedly noticed the high grade of all our special machinery for manufacturing. This enables us to manufacture more cheaply this high grade of work than competitors who are manufacturing in a small way could possibly do. Our reputation has been made, and our trade secured by the completeness of each separate machine sold in the market. This has been Mr. Smith's special ambition, to build a machine so good that no competitor could afford to build it for the money the company sell them for, even were their rights under the company's patents secured to them. Mr. Clark, who is an old resident of Jackson, has been connected with the company in an important position for many years, and his selection as the manager of the European business is evidence of the high esteem in which he is held by the company. He, with Col. Mason, the attorney for the company, has gone to California on business connected with the purifier patent suits and as soon after his return as practicable will take his departure for Europe.

The record of the flour trade of Detroit during much of the past year has, says Secretary Mac Iver of the Board of Trade, been unsatisfactory to most of those handling products, though in some respects at least there has been an improvement over that for the preceding twelve months. Two inferior wheat crops, one of them, viz., that of 1882, being materially damaged, was a serious

barrier to the trade of this city and state, and even with the splendid harvest of 1884 the recovery of lost prestige and ground has been slow and discouraging. The stock available for millers' use during the past year, until the new harvest, was inferior, or at best unsatisfactory, and it was only with much care in the selection of wheat and the bringing in of more or less from other states that millers who desired to maintain the reputation of their brands could do so; while the great amount of poor wheat used, and the mixing of the low and the injured grades with wheat which was better and really sound, steadily worked against our market, and reputation of Michigan flour upon both sides of the Atlantic. During the early months of the year a good deal of this low grade flour was manufactured in some quarters, and quite an export trade was secured in such stock. The general effect, however, was injurious to the real interests of our market, and there is no doubt that many who were most interested in maintaining the trade of our city and state, found serious difficulty in so doing by the inferior quality of much of our stock placed in market to be pushed off at a low figure. By reason of such a condition of the flour trade of our state, due largely to the poor harvests of two years, much loss was sustained by the milling interest, and business has dragged the whole season. Receipts and shipments steadily fell away, and the movement of products during the first nine months of 1884, viz.: from January to September, was perhaps the lightest ever realized by the trade of our city. This brings down the record for the year to a very low aggregate, and comparisons are unfavorable with those of former seasons. It is only just, however, to state in this connection what has been said in former reports, that the whole method of handling this product in our market has changed, as compared with that of a few years since, and large arrivals of flour can never again be expected at this point for the trade of Detroit. Orders for the supply of the eastern markets are now, as a rule, placed directly in the hands of millers, and shipments are on through bills, making no record at this point, though the product is moved through our city. A few years since this trade was largely controlled by commission merchants of Detroit, and arrivals here then amounted to a half-million or three-quarters of a million of barrels, and for one or two years they received nearly 1,000,000 barrels. But that day has passed, and the changed condition of the trade will never bring it back. Arrivals now are almost wholly for the local or home supply, and receivers have handled very few orders from district markets. In the room of that, however, an important and a growing milling interest has been established; the distribution of flour by such hands has reached large proportions, and is quite rapidly increasing. During the past year or two the milling capacity of our city has nearly doubled, and the quality of flour now furnished by the best manufacturers of Detroit, cannot be surpassed by that of any other market. Our leading mills are either entirely new, or have been refurnished with the most approved machinery and of enlarged capacity. The product for 1884 has been increased over that of former years, but the limit of capacity has not been reached. That very cheap prices for breadstuffs, coupled with comparatively high rates for meats of all kinds has stimulated the consumption of the former, until it has exceeded by far that of any former season there can be no doubt. But the introduction of new and improved machinery, increasing the capacity of mills already in existence, while many new ones have been erected, has doubtless brought about an over-production, and the year's record of business generally has not been satisfactory. The following is as close an approximation of the milling business of the year as can be made:

	Barrels.
Total production of the year.....	249,914
Shipped.....	153,312
Sales in city.....	96,602
The wheat used in the production of the above was:	
Bushels.	
Out of elevators.....	466,476
Off track.....	522,811
From farmers' wagons.....	138,626

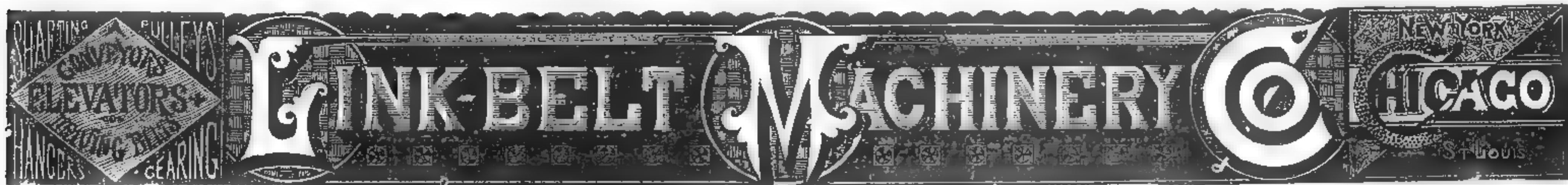
Total..... 1,127,913

Comparison with previous years:

	1884.	1883.	1882.
Receipts from elevator and off track.....	989,287	971,361	707,545
Receipts from farmers' wagons.....	138,626	150,000	176,956
Total wheat used..	1,127,913	1,121,371	884,501

Barrels of flour produced..... 249,914 246,964 188,120

There are nine mills in the city. Of these, one of the largest only worked for nine months. Of the smaller, one worked three months only, one worked six months and one worked ten months.



CONCLUSIVE PROOF OF THE SUPERIORITY OF THE GRAY NOISELESS ROLLER MILL.

Is furnished by the fact that these celebrated machines will be used by Messrs. C. A. Pillsbury & Co. in their new **PILLSBURY "B" MILL**. All bidders for the work of constructing this immense mill being required to figure on using the **Gray Roller Mills**. The selection of these machines for the new "B" mill was the result of several years practical test in the other mills owned by the same firm in competition with various other roller mills, the decision being unanimous that, in all particulars, for practical work in the mill, **Gray's Noiseless Roller Mills** were superior to all others. We wish to assure our customers who may not wish to build 2,000 barrel mills, but who wish to build mills of smaller capacity, that no matter what size mill they desire to build or how small its capacity, the **Gray Roller Mills** are the best they can use, and we shall at all times furnish machines equal in every respect of material and workmanship to those which will be used in the new **PILLSBURY MILL**.

EDW. P. ALLIS & CO., RELIANCE WORKS, MILWAUKEE, WIS.

Sole manufacturers of *Gray's Patent Noiseless Roller Mills*, adapted to mills of any desired capacity.

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INDIANAPOLIS, IND., U. S. A.
MANUFACTURERS OF
STEAM ENGINES & BOILERS.
Carry Engines and Boilers in Stock
for immediate delivery.

TOOL FOR CUTTING, LEVELING & POLISHING THE FURROWS & FACE OF MILLSTONES

Eight inches long, 2 1/4 inches wide, 1 1/2 inches thick. Received the highest and only Award given to Polishers at the Millers' Exhibition, Cincinnati, Ohio, June, 1880.

For facing down high places on the buhr, this tool has no equal, and can be done much better and in one-sixth the time than with the mill pick. It is much larger, cuts better, can be used on either face or furrow, can be used until the corundum is entirely worn out on one side and then turned on the other side. Has over four times the amount of corundum and when the corundum is worn out can be replaced in the handle at a small cost. Sent by express, \$3.50. Satisfaction guaranteed, or money refunded. Address



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Buckwheat Refiners & Portable Mills

BREWSTER'S CELEBRATED Buckwheat Refiner
Is the only machine whereby the greatest yields of
PURE, WHITE SHARP FLOUR
can be obtained.
The only reliable, practical and durable machine
IN THE WORLD.

THE POSITIVE ADJUSTMENT AND AUTOMATIC MIDDINGS MILL
Is Strictly Self-Protecting
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Perfect Granulator
Grinds Cool, Self-Oiling, Great Saving of Power.
Simplicity and Durability Combined.

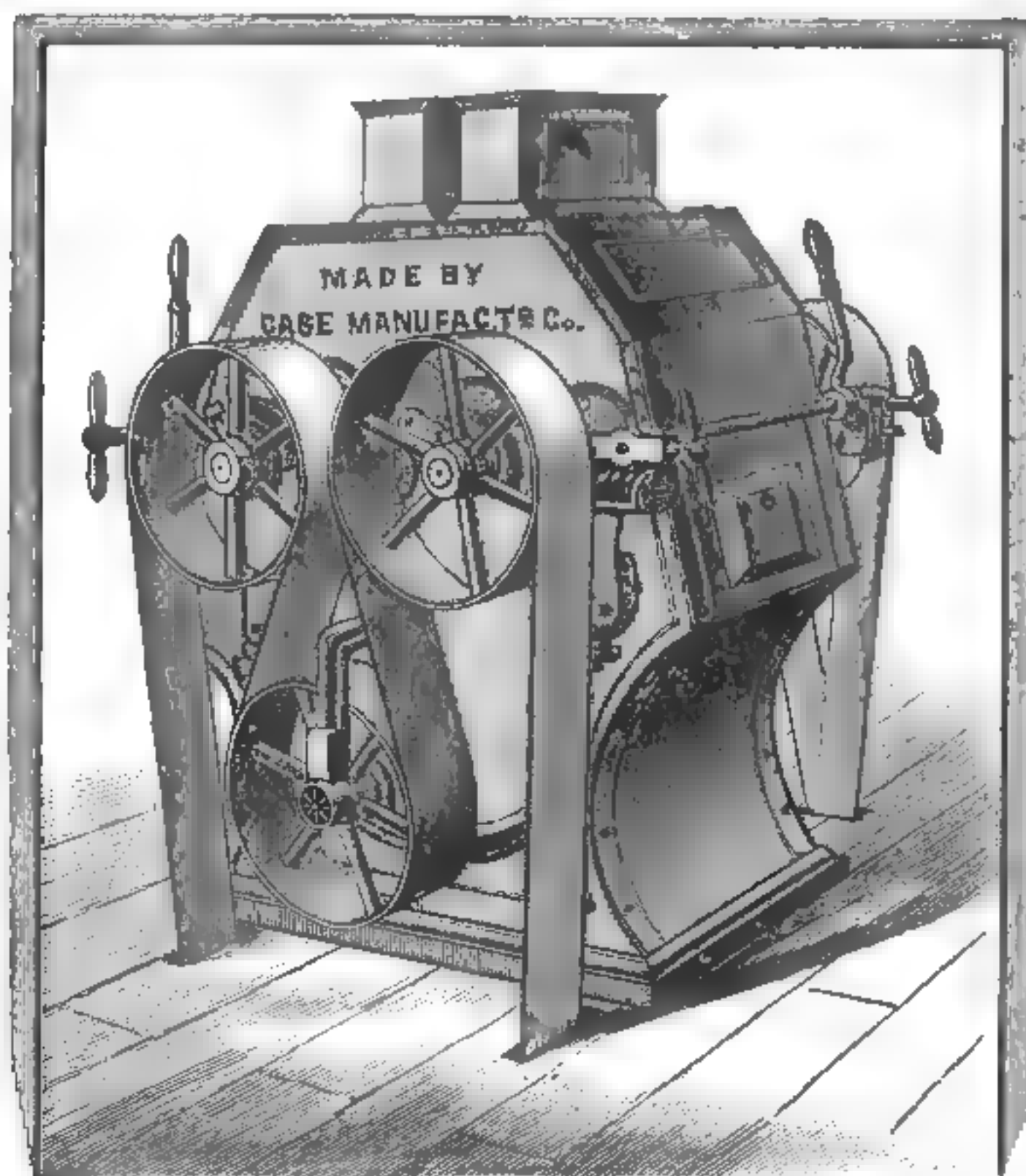
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THE "SALEM" ELEVATOR BUCKET.

SHOVEL EDGE
Seamless Rounded Corners
CURVED HEEL.

RUNS EASY
STRONG & DURABLE
EMPTIES CLEAN.

W. J. CLARK & CO., SOLE MANUFACTURERS, SALEM, OHIO.
New York Office and Salesroom, No. 2 Cliff Street



9x18 4-ROLL MILL. "BISMARCK."

C. A. S. E.

CASE MFG. CO., COLUMBUS, OHIO.

XENIA, OHIO, Dec. 15, 1884.

Gentlemen: Feed box received; put it on in a few minutes; started up in a very short time. I was surprised to find my tail over as poor. I examined middlings and found them at least 25 per cent. clearer. Examined flour, was whiter and clear of specks. You know I feel happy, and all because of that little feed box. To sum it up:

- 1st. Simplicity and Durability.
- 2d. Takes care of itself.
- 3d. Feeds alike all the time.
- 4th. Will increase capacity of any Purifier one-fourth.
- 5th. Will make clearer middlings by Twenty-Five per cent.
- 6th. No miller can afford to do without one on any machine in mill.
- 7th. Perfection is the name.

Wishing you a Happy and Merry Christmas, I am, Respectfully yours,

W. H. HARBISON.

We invite all who Contemplate Making any Changes in their Mill to Write to us or Come and See us Before Placing Their Orders.

THE CASE MFG. CO., COLUMBUS, OHIO.



WHEAT FIELDS OF THE WORLD.

IN the information now supplied by the Agricultural Department of the Privy Council, says the London Globe, there is contained for the first time an account of two of the greatest wheat growing districts. Russia is now second on the international roll, and it is, therefore, a great accession to our knowledge to have a clear statement of the acreage cultivated with this crop in Russia, and a near estimate of its productive capabilities. Still more valuable are the returns relating to British India, which sends us so vastly increasing a proportion of our imported wheat. The tables now published by authority give with tolerable accuracy the extent of land in those great countries and others which are devoted to the growing of wheat and other crops. But to the consumer, or, in other words, to the general public, it is more interesting to know the actual quantity of wheat produced in each territory. This varies much more capriciously than any could suppose who had not before him the official figures. In many cases the small out-turn of wheat is accounted for by the fact that rye, oats and barley are more largely grown by the farmers of the country. But, even making all allowance for this, it is difficult to explain the extreme differences shown between one part of the world and another. It will, of course, be supposed that the United States now stands highest on the list. It shows, in fact, a total production for 1883 of 421,000,000 bushels. France has a total production calculated also in millions of bushels, of 285, in which is included besides wheat a small out-turn of spelt. Next we have India, with about 244,000,000, grown upon 26,000,000 acres. Then returning to Europe, Italy, with 150,000,000, Russia with 101,000,000, Germany with about 89,000,000, and Hungary with 87,000,000. The next place is taken in Europe by Austria, which in an average year produces about 40,000,000 bushels. Canada in an average year grows about 33,000,000, and Australasia about 30,000,000 bushels.

AUSTRALIAN WHEATS.

The correspondent of the London Economist at Adelaide gives some interesting statistics and theories founded thereon respecting the cost of raising wheat in the British Australian colonies. There are seven of these. Last year they produced 45,238,550 bushels of wheat, the average being 12.37 bushels to the acre. The highest average was 26.02 bushels, made by New Zealand; the lowest 4.84, by Queensland, which however, produced but a few thousand bushels. The largest producers are Victoria, and South Australia, which raise about fifteen millions each, at an average per acre of 14.10 bushels for the former and 7.94 for the latter.

That which is of absorbing interest to the American in the letter of this correspondent is that the colony of South Australia—which only averages 7.94 bushels to the acre and which is one of the three colonies that are the largest producers, but by far the least productive—can produce wheat at 8s or 66 cents per acre. This is at the rate of, say \$265 per head for the labor employed. The present price of wheat at Port Adelaide, South Australia, is 3s 6d per bushel.

The conclusions of the writer are that it may be considered South Australia, in which the smallest quantity to the acre is grown, will continue to grow wheat for export at present prices; that those who are engaged in farming have sunk their capital

in it and will not leave their homes unless greater inducements are offered, and that, as a shrewd politician says, "they are in a hole and must stick there, as it is only a question of another shaped hole."

Now, when we call to mind the facts of our American wheat-growing outlook, we will at once see the important bearing which this cheap production of the wheat at the antipodes has upon our whole business situation, says the Chicago Tribune. That is now so largely influenced by the price our agricultural products will bring abroad, that, from the farmer to the railway investor, from the manufacturer to the merchant, from the mechanic to the laborer, all are deeply interested in the advancement of prices and earnings to the values of our agricultural products in the world's markets.

EUROPEAN RAILROADS.

The French Ministry of Public Works has published a little table showing the total length of the railways in the various European countries, with the number of miles built in 1883, from which it appears that Germany is, of all Continental countries, the best furnished with iron roads, having now more than twenty-two thousand miles, of which nearly six hundred miles were built last year. Next to Germany comes the kingdom of Great Britain and Ireland, which possessed about nineteen thousand miles of railway, but adds to its lines much more slowly than any of its rival nations on the Continent. France is third on the list, in regard to the total extent of road, having now eighteen thousand five hundred miles, five hundred of which is the work of 1883; and Russia is next, with fifteen thousand seven hundred. The railway fever seems to have abated in Russia, and only four hundred and fourteen miles were built last year in that vast empire, while Austro-Hungary although possessing only thirteen thousand miles in all, has been wise enough to promote the amalgamation of the diverse races which make up its population by an activity in railroad building surpassing even that of France, and second only to Germany among all European nations. Italy, a country of skilful engineers, constructed in 1883, two hundred and fifty-seven miles out of the fifty-nine hundred which now serve so well its restricted territory, and Spain, under good government, has kept pace almost exactly with the rival peninsula. Greece, under the impulse of some sudden fit of enthusiasm, built in 1883 more than half of its entire railroad system, but as its railway system, even with that addition, amounts now to less than fourteen miles of road, we need not fear that a revolution in the Greek character has begun.

FAILURES IN GREAT BRITAIN.

The record of failures in the United Kingdom for the year 1884 shows a striking decrease, as compared with the two preceding years, says "Bradstreet's." The annual estimates of Mr. Richard Seyd and of "Kemp's Mercantile Gazette," while differing in their totals for the periods referred to, agree in showing for last year an apparent diminution of more than 50 per cent., as compared with the figures of the preceding years. These authorities, however, appear to be of the opinion that the recorded figures do not cover the whole number of failures occurring in the Kingdom during the year. "Kemp's Mercantile Gazette" says that it is well known that numerous failures which have taken place during the past year have not been included in its figures, and it estimates the number of such failures at 2,600. This state of affairs is owing to the fact that in a great number of cases private settlements have been made with creditors. These facts apparently sustain

the position of those who hold that the new bankruptcy act has failed to put an end to the abuse of private compositions. These abuses seem to be greatest in the large towns, and appear to be caused partly by the excessive severity of the act, which terrifies traders whose transactions will not bear a searching scrutiny, and partly by the want of some method compelling the registration of private arrangements. The experience through which England is now passing is of much interest, and deserves the careful attention of all interested in the question of bankruptcy legislation here.

A REMINISCENCE OF 1873.

"Do you remember Black Friday?" said a reporter to a prominent broker, as the two sat together after office hours, hoping the Spanish treaty would be acceptable to Congress, and the reduction in the price of cigars would enable them to smoke something more fragrant than Connecticut tobacco."

"Do I remember Black Friday?" mused the broker, as he leisurely puffed a cloud to the ceiling. "Well, my impression is that I have pretty fair reasons for not forgetting it. I came near losing every penny I had in the world on that occasion, and a man is not likely to let such an event slip from his memory, is he?"

Then rose a few more clouds, and the man of stocks lapsed into a brown study, at the end of which he half muttered, half growled, "H'm! Yes, I was on hand, and had a very narrow escape, I never worked so hard in my life as I did for the twenty-four hours from 10 o'clock on Sunday morning to 10 o'clock Monday."

"In saving the pieces?" suggested the reporter.

"No, but in keeping myself from going to pieces."

"And so you think you won't forget it in a hurry, do you?"

Just suppose," said the broker, as he fell to musing again, "just suppose you met with an accident. Well, a railroad collision will serve my purpose as an illustration. Now then, if you had at any time of your life happened to be on board of a train going at the rate of forty miles an hour, and you had hit another train coming at the same rate, you probably would not forget all about it in a couple of days, would you?"

"I rather guess not," admitted the reporter.

"Well, then, suppose yourself picked up out of the pile of burning rubbish, with four ribs broken, a compound fracture of the leg, your arms bent double, and your head so bruised that it had swollen to the size of a half-bushel measure, and it took you six months, with a brain fever thrown in by way of variety, to get on your pegs again, don't you think you'd keep the incident in mind for a little while? I tell you, many an honest fellow lost every penny he had that day; and it's not an easy thing to see the results of twenty years swept away—not lost, mind you, by any misjudgment, but stolen out-right, just as much as though a highwayman were to put a pistol to your head and cry out, 'stand and deliver.' The brokers were like flies and this big spider, Gould, sucked the life out of them."

"And you were among the number?"

"I got badly scorched, so to speak, but a good many were burnt right into the bone."

"Tell me the story, if you have a mind to."

"Well; it runs somehow in this wise: On that Friday morning my balance was \$90,000. The Directors sent me word they had no legal tenders, but that they had plenty of gold certificates, and told me that if I would send over a certified check for \$200,000, in greenbacks of course, they would give me gold certificates for \$215,000, the premium on which would make the sum

just \$290,000 in currency, and so clear up my account. Do you understand?"

"Perfectly."

"Of course there was but one thing for me to do, and I did it. I knew the bank was hard pressed, but I supposed the Directors would be as honest as most men could afford to be in an emergency. I rushed up to my own bank, got a certified check for the amount stipulated, gave it to my clerk, who took it over to the bank, I sitting in my office and smoking like a steam engine, in my anxiety. In a few minutes my clerk came back."

"With the gold certificates?"

"Not much, my innocent friend."

"And why not, pray?"

"He was as white as a sheet and trembled like a leaf. 'Well?' I howled, for I knew something had gone wrong."

"They won't give me money," he fairly moaned, and they won't give me the check, either."

"What! I yelled, 'do you mean to say they have taken the certified check and given you nothing?'"

"Just that," and the fellow sat down and almost cried."

"It was a terrible moment. Every dollar I had in the world was in danger, and danger of no ordinary kind either. They had deliberately taken that check, and refused to give me a dime. I crowded my hat over my eyes, and, wild with frenzy, rushed over to the bank. The room was full of men just as anxious as I was, who had been swindled, as I had been. I hardly knew at the time what I did; but they say I cried out, 'Boys, the Directors have cheated us like highwaymen. They have every penny I possess in the world. Behind that counter is money enough to pay all they owe us. It belongs to us, and has been stolen. If any man will follow, we'll tear down the bar and help ourselves to what belongs to us, and see how they like their own game.'

"Well, either fear or common sense or prudence prevailed, and no one stirred. I saw that nothing was to be done, and I went back to my office and sent post-haste for a prominent lawyer, now a Judge. I stated the case and he shook his head. That was not encouraging. Simply saying he would see what he could do, he went away and left me in a perfect fog. On Monday morning at 12.15 o'clock it was raining as I never knew it to rain before, but I was down on the steps of the bank, with a young sprig of the law and with injunction papers to serve. If I could once get hold of the President, or even of a Director, and put the papers into his hands the bank would be only too glad to pay me in full, rather than submit to any sort of investigation. My plan was to knock, and when the janitor opened the door to have the lawyer put his foot in the crack of the door, and then the rest of us, there were four altogether, would give a shove and get inside the building."

"Well, you knocked?"

"Yes."

"And the janitor came?"

"Yes."

"And you—"

"No, we didn't either," he broke in quickly. "That's just when we were tripped up. I told the young lawyer to put his foot inside the door when it was opened, and so keep the janitor from shutting it. But he didn't do it, and the janitor slammed the door in our faces. Well, no matter what I said, but I was eloquent for about two minutes, and used the 'English undefined' in a very vehement fashion."

"So you were defeated, after all?"

"No, we weren't, either. This is a story where guessing does no good, and you must listen till I get through."

"I am all ears."

"Well, we stood under cover of a porch until about three o'clock. We chose a porch for two reasons, viz., to get out of the rain as much as possible, and also to get away from the telescopes of the Directors, who were peering everywhere to see if any one was near to disturb them. At last, oh, we were all drenched by that time. Some one whispered, 'I heard footsteps and a noise.' Sure enough. In a minute I heard the bolt of the door slip back. 'Now boys, keep still, I said,' and we were as quiet as death. Then a man, who afterwards proved to be a director, stepped out, looked up the street and down the street, but of course didn't see us, and then, thinking the way was clear, he started across the street."

"And you went for him?" asked the reporter.

"Somewhat," was the reply. "Almost before he got off the curbstone my man was at his side."

"Good morning, sir," he said.

"The Director turned his head in a startled way, but before he could do anything my man put the injunction papers into his hand, and told him what they were and what we proposed to do."

"After that I went to my office to await developments. It was no longer necessary to search for the bank officers, because the turn of affairs had made it necessary for them to search for me."

"But why should they search for you?" inquired the reporter.

"Why? Well, suppose for a moment that those injunction papers had been in force at 10 o'clock in the morning, when the bank ought to be open."

"True, that would have been inconvenient."

"Yes, and more than that."

"What more?"

"Well, suppose that bank had not only stopped payment, but had fallen into the hands of the law, and its books had been opened to public inspection?"

"That would have been very—"

"Yes, indeed. It was not to be thought of. Well, to finish, I was sitting with my feet upon the desk, cheerfully and hopefully smoking, when there came 'a gentle tapping on my chamber door.' A mild-mannered gentleman, no matter who he was, entered and expressed such regret that I had suffered inconvenience, and wanted to know if the little difficulty could not be adjusted to the satisfaction of both parties. I answered that I thought it could be adjusted to my satisfaction, but as for the other party I was not so certain. In short—"

"You got your money?"

"Every cent, and lawyer's fees—not small, but big."

"But why did they pay you?"

"Had to. They didn't want the public to know what I knew, and so my little bill was paid and the matter ended."

NOTES.

All the corn markets, except the Mark Lane magnates, point to a decreased acreage of wheat in Great Britain for this year.

Interest in the Hennepin Canal project continues unabated in Western Illinois and Eastern Iowa, and missionaries have been sent South and to other parts to convince our legislators that it is a national measure.

The latest burglar alarms are electric mats concealed beneath the carpets, by which the gas may be lighted or extinguished, bells rung, guns fired off, and the burglar or belated householder generally demoralized.

The quantity of home grown wheat marketed in 1884 in the 187 leading English markets was 2,883,120 quarters; on the usual basis of calculation this implies a total of 9,443,740 quarters, or 75,549,920 bushels, for the United Kingdom.

French engineers, after long and repeated experiments in drying, painting, etc., inside and outside of boilers to prevent decadence when not in use, have decided as follows: "A steam boiler which is about to be unused for a time should be

thoroughly cleaned, and instead of drying should be filled quite full of water."

According to Sir Trevor Lawrence, M. P., there is a collector of orchids in England who employs fourteen persons—nearly all German naturalists, and each costing about \$6,000 a year—to search for new species and varieties in different parts of the world. He has two acres of the plants under glass, and his total annual expenditure on orchids is nearly \$100,000.

The discovery of a fifteen foot vein of anthracite coal in Manitoba, about 200 miles west of Winnipeg, on the Canadian Pacific railway, has created great excitement in that part of Her Majesty's dominions. This is the only discovery of anthracite so far west. Most of the coal in the United States about that longitude is of the lignite variety. The Canadian geological formation is much older than that of Kansas and Nebraska, which probably accounts for the difference.

The urban and agricultural population of England and Wales is increasing at the rate of 17.5 and 8.3 per cent. respectively. The seaport towns are increasing at the expense of inland boroughs, and the "Builder" charges that English railway fares are now adjusted to bring about this undesirable end. In case of war the seaport town could be easily attacked, and it says that while the movement tends to paralyze the inland towns and agricultural districts, there is no doubt of the movement's existence, and it urges house builders to govern themselves accordingly.

The milling industry of Hungary evinces a fair state of activity in spite of the hard times. According to the statistics the export of 1881 amounted to 509,000 metercentners, to 606,000 mtc. in 1882, to 645,000 mtc. in 1883 and to 650,000 mtc. in 1884. Certainly very encouraging figures in view of the constantly growing competition of America. Of course, the dividends paid to the stockholders of the large milling establishments were not as high as they have been in former years, but other industries have suffered in the same way, and many of them have not only been unable to pay any dividend at all, but have worked at an actual loss, or closed their establishments entirely.

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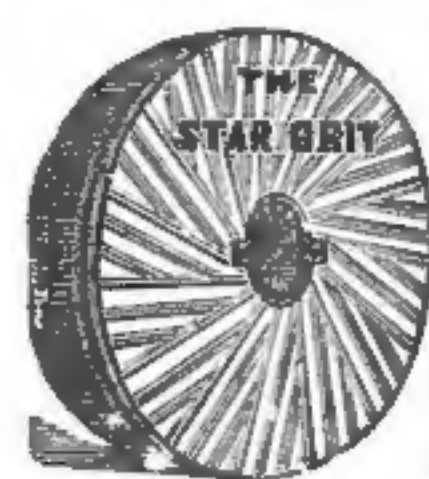
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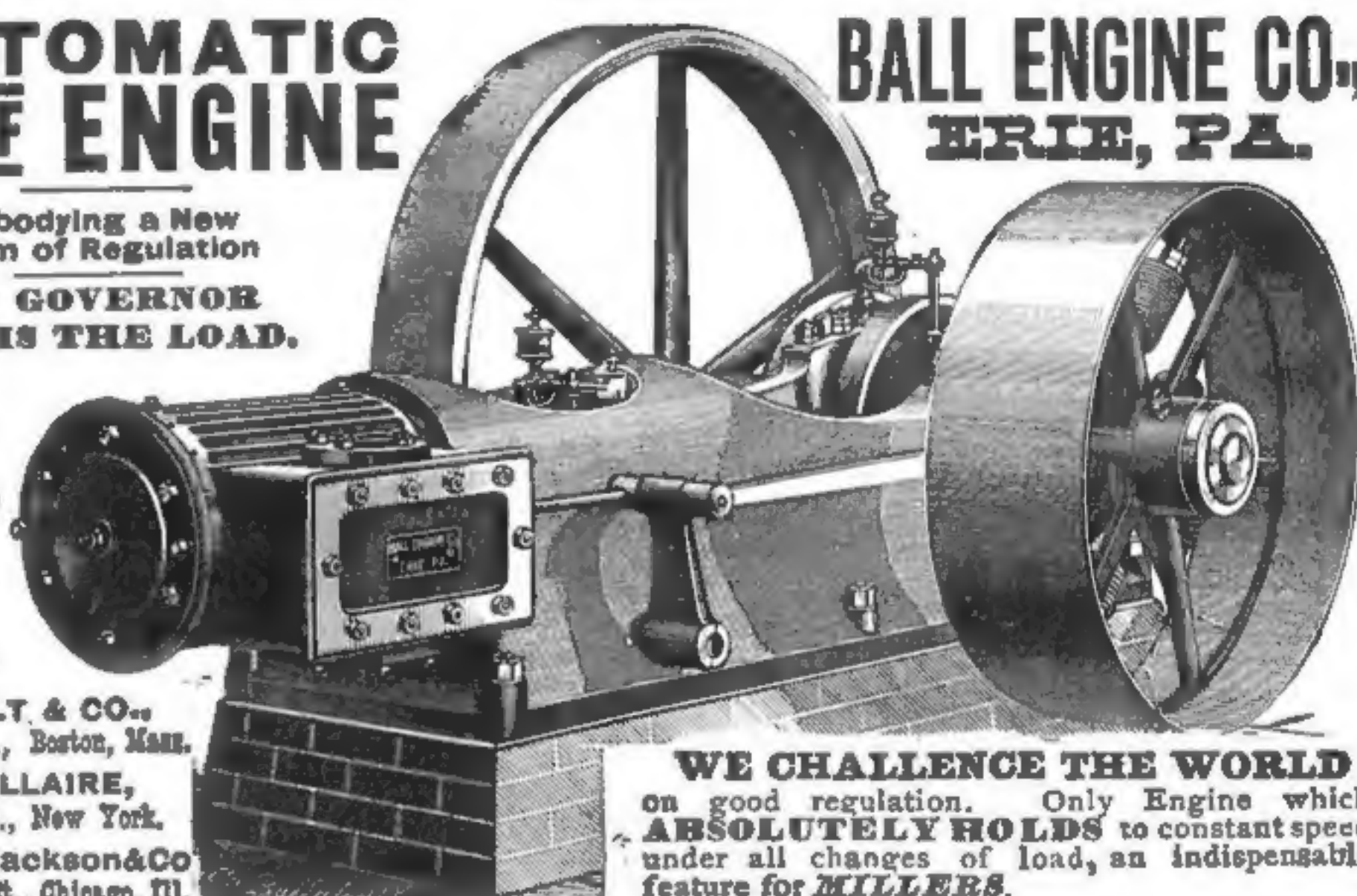
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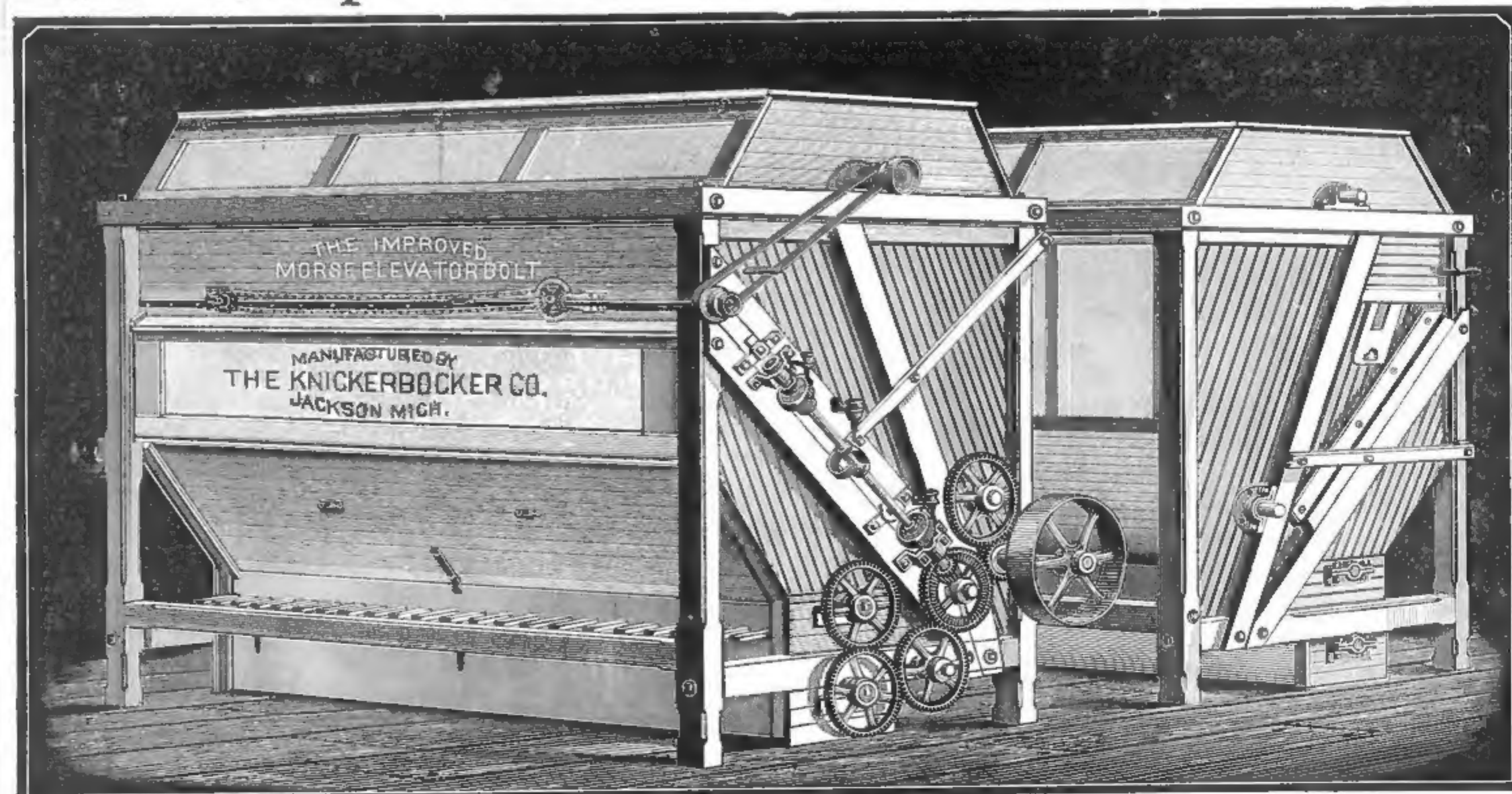
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Office of THE MILLING WORLD,
Buffalo, N. Y., Jan. 21, 1885.

The New York Commercial Bulletin says: Left to itself, the breadstuffs market has been predisposed to weakness, with the foreign cable advices of bearish purport; the visible supply of wheat, corn and oats showing increase instead of decrease, while a decrease was generally predicted for wheat, both by the New York and Chicago anticipators; the export demand unsatisfactory, and the interior receipts running rather above expectations. In the face of these facts the "bulls" have made several well-concerted movements to arrest the decline, but found prices down, with May contracts weighing heavily on the market at 96 1/4 c. The "bulls" ran short of war rumors and had nothing else to work with. A reported Pittsburgh oil failure caused something of a "bull" stampede; the subsequent denial of this report restored the market, but after that the sagging process seemed to be the result of inherent weakness; outside interest was deficient, with the incoming orders instructing the brokers to sell out. Whatever of firmness the market may have had has been of a sympathetic nature as a response to the relatively stronger ruling of the Chicago market. The Chicago market is finally weak, under a liberal selling for local account as well as foreign account. The latest indications as to the probabilities of receipts are in favor of a larger run. The longest pursued "bulls," both in the west and here, are calling the recent decline in wheat one of the surface fluctuations, and use no breaks to buy, on being confident of still higher prices within a week. The market here was raided by the "bears" during the supplementary session, and a further decline of 1/4 c was made.

Receipts of flour would seem to be filling up a little, but a good deal of the flour arriving has been already placed, and there is no general pressure on the market; on the contrary, holders are as a rule looking with a good degree of complacency upon the future of the market as to the promise of business and the stability of values, and it is full prices or no sale in most every case. Here and there, however, there is a softish spot where the flour has to be sold, and buyers are shopping about for these, to the neglect of the regular lines. The market therefore, is rather quiet and somewhat irregular, with a firm undertone, while the easier ruling of wheat is making buyers a little cautious in the matter of buying beyond present wants. Exporters are looking for an easier buying basis to conform to the less favorable wording of their cable advices. The local trade is buying moderately. There is no quotable change in prices. The market for rye flour has been fairly active and steady in tone, with an upward tendency on the better grades, on continued light arrivals, at quotations appended. Buckwheat flour is in light demand and, without decided change in prices, the market is barely steady in tone: \$1.85a, 1.95 is the range for the general business, and \$2.00 an extreme price for fancy lots. For corn goods there is a moderate demand, but the market still shows a steady tone. Millfeed is moderately active at steady figures, with coarse feed strong and scarce; track receipts light, and offerings of feed also light.

BUFFALO WHEAT MARKET.

BUFFALO, N. Y., Jan. 21, 1885.

The market is very strong on wheat all around, 97c. being asked for No. 1 hard,

and 95c. for No. 1 Northern, but there is very little of either grade here for sale. No. 1 white is offered at 92c; red winter wheat No. 2, Buffalo inspection, is offered at 91c; prime No. 2 regular at 93c. Large lots of Northern Pacific wheat have been ordered for New York. Corn is in fair demand. Considerable arrived last week. No 2 corn on track offered at 50c., and 48a.47 Buffalo inspection. No. 3 prime 47c.. lower grades 43a.45c. Oats nominal.

J. S. MCGOWAN & SON.

FOREIGN EXCHANGE.

The market for sterling was quiet but strong, and posted rates were advanced 1/2 cent, to 4.83 and 4.87. Actual business was at 4.82a.4.82 1/4 for sixty days', 4.85 1/2 a. 4.85 3/4 for demand, 4.86 1/4 a. 4.86 3/4 for cables and 4.80 1/2 a. 4.81 for commercial bills. In Continental bills very little was done, the rates being as follows: Francs, 5.23 1/4 a. 5.23 1/2 and 5.21 1/4 a. 5.20 3/4; reichsmarks, 94 1/4 a 94 1/2 and 94 3/4 a. 95; guilders, 40 and 40 1/4. The closing posted rates were as follows:

	60 days.	90 days.
London	4 83	4 87
Paris francs	5 23 1/4	5 19 1/2
Geneva	5 21 1/4	5 18 1/2
Berlin, reichsmarks	94 1/2	95 1/4
Amsterdam, guilders	40	40 1/4

BUFFALO MARKETS.

FLOUR—City ground clear Northern Pacific spring \$4.75@5.25; straight Northern Pacific spring, \$5.25@5.75; amber, \$5.00@5.25; white winter, \$5.00@5.25; new process, \$5.75@6.00; Graham flour, \$4.25@4.50. Western straight Minnesota bakers, \$5.00@5.25; clear do, \$4.75@5.25; white winter, \$5.00@5.25; new process, \$6.25@6.50; low grade flour, \$2.75@4.00. OATMEAL—Ingersol \$5.00; Bannerman's \$5.25; Akron \$5.50. CORNMEAL—Coarse, 90c; fine, \$1.10 per cwt. RYE FLOUR—In fair demand \$4.00@4.25. WHEAT—Quiet. Sales 8,000 bu. No. 1 Northern at 97c May, and 8,000 bu No. 1 hard Northern Pacific at 97 1/2 c May, at the Call Board 97c asked 95 1/2 c bid cash, 98c asked June. Winter wheat weaker; sale 11,000 bu No. 2 red at 92c on track; at the Call Board 94 1/2 c asked for No. 1 white. CORN—Dull. At the Call Board No. 2 offered at 47c and No. 2 at 47c May. OATS—Scarce and firm. No. 2 white quoted at 35 1/2 c and No. 2 mixed at 33 1/2 c. BARLEY—Firm. Late sales were twenty car-loads called No. 3 at 72@73c, and 8,000 bu Canadian at 83c. RYE—Western nominal at 68@70c.

RAILROAD DISCRIMINATIONS IN UTAH.

Railroad rates in Utah, according to the Salt Lake Tribune, are "actually higher now than they were when it was dependent upon the Union Pacific alone. This in consequence of the freight pool made by the two roads. The freight in and out of Utah must now support two railroads—the Union Pacific and the Denver & Rio Grande. To get enough to do this out of the miners, farmers, and consumers of Utah, freights to and from the Missouri River are now from 10 to 25 cents higher on the 100 pounds than they were when the Union Pacific alone did all the business." The Tribune tells of an application made from Wood River miners for a reduction of rates by the Union Pacific. They wanted to ship their ores to the smelters at Salt Lake, where the mines were owned, but were charged a figure which discriminated against Salt Lake and in favor of Omaha. They then asked to have this reduced by \$1.50 a ton, so as to give Salt Lake an equal chance with Omaha. The managers promised to consider the request, and then announced as a result of their deliberations, that the rates was to be increased to \$6 per ton, from \$14 to \$20. The consequence is that the ores are sent to Omaha, where it is openly asserted that some powerful member of the road has a deeper interest in the smelters than he has in the welfare of the Union Pacific.

WINTER WHEAT.

J. W. Tallmadge, of Milwaukee, has late and important information from many of the principal winter-wheat growing States.

Complaint seems general that owing to the unseasonable fall and winter the condition of winter wheat is most unfavorable, and the promise for even a fair outcome not very flattering. Michigan, Illinois, Kansas, Missouri and Kentucky report a large decrease in acreage, and owing to the severity of the winter the damage has been very great. The weather has been unusually cold, and many of the principal wheat counties have been bare of snow up to within the past week, and the wheat is wholly frozen out, which will necessitate plowing up in the spring and the sowing or planting of other cereals. The damage in these States is variously estimated at from ten to 25 per cent, Kansas, Missouri and Kentucky being the principal sufferers. The Southern States, especially the Southeast, complain of extended drouth in the fall, which resulted in severe damage to the early sown wheat and prevented the sowing of late wheat, consequently the area in these States is reduced to nearly one-half of that last year. Mr. Tallmadge has official advices from all the agricultural departments or statistical agents of the principal winter wheat-raising States, giving the area sown to wheat compared with last year. The figures show a large decrease, ranging from 10 to 33 per cent. Many of the large producing States, including Kansas, Illinois, Missouri and Indiana, show a larger decrease. Mr. Tallmadge has made an average of shortage on acreage, as compared with last year, and it shows said shortage to be fully 20 per cent. The agricultural departments and the statistical agents of the spring-wheat States say their agents report that there will probably be a large falling off in area sown to wheat this coming spring; this applies more especially to Iowa, Minnesota and Dakota. Farmers in these sections say wheat raising has not been profitable for the past two years, and they will give more attention to raising flax and other products, which they think will result more profitably to them.

THE WHEAT SYNDICATE.

Last year, says the "Monetary Times," of Toronto, the complaint was made that there was a lack of wheat buyers in the Northwest and that prices were in consequence abnormally low. When a considerable surplus of wheat for exportation is suddenly and for the first time raised, at any distant point the question of handling it satisfactorily, is one of capital and enterprise. Capital not required before has to be found to do a necessary work. In the case of the Northwest, a special effort became necessary to raise the capital required to move the surplus and to hold it over at Port Arthur till spring; and for this purpose a syndicate was formed, which included some members, past and present, of the C. P. R. Company. If the grain had been sent over American railways to the seaboard during the winter, the cost of transport would have been greater and the difference must have been deducted from the price. As it is, the Winnipeg Free Press reports that "everywhere along the railway (C. P. R.) Manitoba and Northwest farmers are receiving the highest possible prices in the existing state of the wheat market, and much higher ones than are prevailing in the northern parts of Dakota and Minnesota, Manitoba prices being only two cents lower than Duluth, which is less than cost of transportation."

The way in which the business is done is this. Local buyers post the prices for different grades at the chief points of purchase, from day to day; delivery to be made and the grade to be determined at Port Arthur, the posted price on the day of purchase being paid. To the posted price is added three and a half cents a bushel for elevator, shipping and commission charges. The syndicate has no buyers of its own, though its

general business is managed by Mr. Alexander Mitchell. Farmers may occasionally grumble when their wheat fails to obtain the grading they expect; but on the supposition that the grading is fairly done they have no real ground of complaint.

There is more or less connection between the wheat syndicate and the railway company, in which, if this were a permanent arrangement, there would be material for objection; but as a temporary expedient the arrangement is undoubtedly in the farmer's interest. If it did not exist he would get less for his wheat. This every one can understand; and to the arrangement between the syndicate and the railway company there cannot, on public grounds, be any objection. To a permanent arrangement of this kind very great objections might arise. The effect might be, and in that case could not well help being, to create and perpetuate something in the nature of a monopoly. When the trade becomes developed, the best thing will be competition among grain buyers with whatever choice in the means of communication there may be. If at present the wheat syndicate prevents competition it is because it gives prices which no one thinks it safe to overbid, and which no one could overbid without something like a certainty of losing by the traffic. It would be better if the grain were graded at Port Arthur by a public officer, and not by a servant of the syndicate. Not that injustice is perhaps likely to be done, under the present system; but an official grading which left no pretext for a suspicion of favoritism would remove any possible cause of dissatisfaction. The change is one which in the ordinary course of things is likely to come about; and in the meantime it is satisfactory to learn from an authority so little likely to be prejudiced in favor of the syndicate as the Winnipeg Free Press, that the farmers are getting the highest prices for their wheat.

The venture of the wheat syndicate has in it necessarily an element of speculation, greater than that which attaches to the grain trade where the movement is more rapid. The necessity of wintering the wheat at Port Arthur makes the syndicate dependent upon the prices which may rule some months hence, when it will be possible to forward the wheat to market. That the very highest market price is paid does not diminish, but adds to the risk. The low price of wheat tends to create an impression that it must rise; but the assumption is gratuitous and there is no certainty that there will be any increase in price. This however, the syndicate and the bank or banks that make advances to carry on the operation must have known and calculated upon.

Under the present arrangement there is no doubt the C. P. R. will find it necessary to carry the wheat at the lowest possible charge for freight. This is a great advantage to our farmers, at a time when the farmers of Dakota and other western states are obliged to submit to excessive charges for carrying their grain to market charges which often cut down the net returns which they receive, below the cost of production. If our Manitoba and Northwestern farmers are making a profit out of their wheat, there can scarcely be a doubt that they owe their good fortune to the arrangements that have been made to purchase and ship their produce by the wheat syndicate. But, we repeat, though this syndicate is a good thing as a temporary expedient, it does not follow that as a permanent institution it would be useful or desirable.

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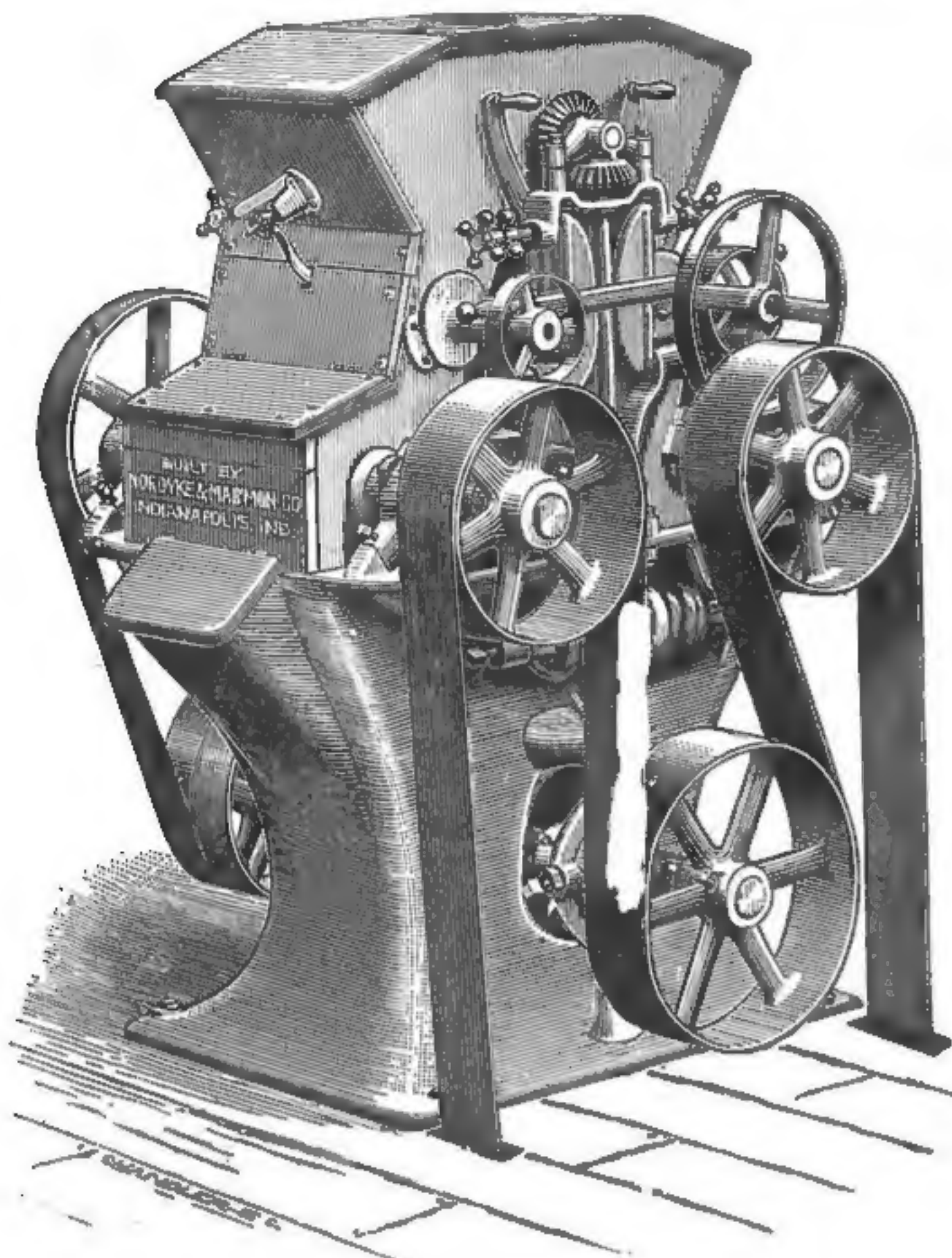
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Yours, etc., R. M. FAUCETT, PRES.

OFFICE OF DAVIS & FAUCETT MILLING CO.,
ST. JOSEPH, MO., Nov. 28th, 1883.

300 BARREL MILL IN ILLINOIS.

MESSES. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen: We started up our mill in June last year, and it gives us pleasure to say that your Roller Mills are doing splendid work and give us no trouble. Your milling program required no changes, and concerning yields, we get all the flour from the offals, and we sell our best grades in the principal markets of the United States at the highest prices offered for any flour. All the machinery made by you is first-class, and we would not know where to purchase as good.
Yours respectfully,
DAVID SUPPGER & CO.

OFFICE OF DAVID SUPPGER & CO.,
HIGHLAND, ILL., Jan. 10, 1884.

125 BARREL MILL IN INDIANA.

NORDYKE & MARMON CO., INDIANAPOLIS, IND.

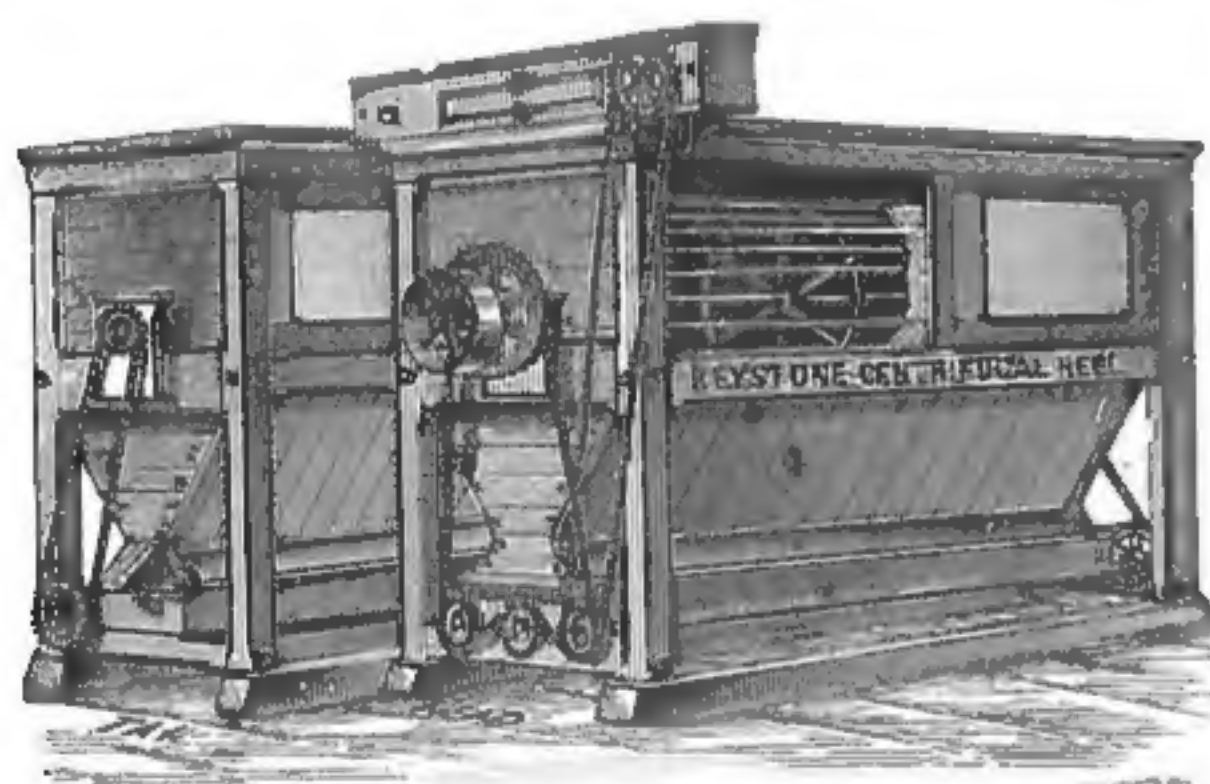
Gentlemen: The 125 barrel All Roller mill you built us has been running all summer, and does its work perfectly. Before contracting with you for this machinery we visited many Roller Mills throughout the West and Northwest, built by the different leading mill furnishers, and from all we could see, those built by you seemed to be giving the best satisfaction, and this is why we bought our machinery of you. Our mill comes fully up to your guarantees, and the capacity runs over your guarantees. The bran and offal is practically free from flour, and our patent and bakers' flour compares favorably with any we have seen elsewhere. I don't think anyone can beat us. Your Roller Machines are the best we have seen; they run cool, and the interior does not sweat, and cause doughing of the flour. Judging from our success, we would recommend other millers to place their orders with you.
Yours truly,
J. T. FORD.

LAPEL, MADISON COUNTY, IND., Jan. 10, 1884.

Letters on file in our office from a large number of small roller millers giving as favorable reports as above. A portion will be published as occasion demands.

SPECIAL MILLING DEPARTMENT! Mill Builders & Contractors--Guarantee Results

Motive Power and Entire Equipment of a Modern Mill Furnished under one Contract.



KEYSTONE CENTRIFUGAL REEL

—PATENTED MAY 6th, 1884.—

Drag Brush Feed, Tightest Heads, Best Results. Cheapest and Best on the Market. Adapted to all Kinds of Milling. The New Drag Feed Thoroughly Protects the Silk. Sent on Trial to any Responsible Miller.

ROLLER MILLS, SCALPING REELS, PULLEYS, SHAFTING AND ALL KINDS OF MILL IRONS.

Full Stock of Dufour and Dutch Anchor Bolting Cloth.

BEST QUALITY FRENCH BURR MILLSTONES, FOR MIDDINGS, WHEAT AND FEED.

Leather, Rubber and Cotton Belting, Smut Machines, Purifiers and everything belonging to a Flour Mill furnished at Lowest Market Prices. For Circulars, Prices and Full Particulars, address the Manufacturer,

C. K. BULLOCK, 1357, 1359, 1361 RIDGE AVE., PHILADELPHIA, PENN.

UNION STONE CO., BOSTON, MASS.

PATENT MILLSTONE CEMENT.

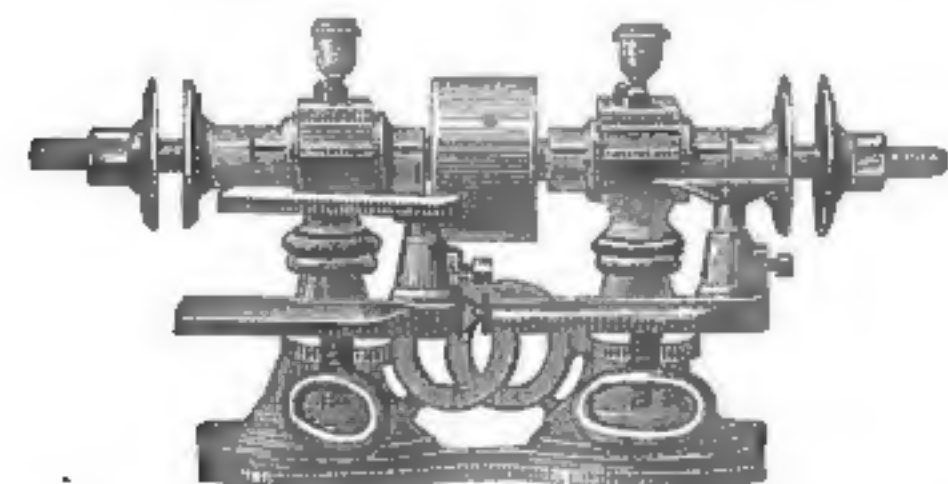
Invaluable to Millers for Repairing and Filling the Joints,

This is a new article of manufacture, and is greatly superior to the preparations now in common use, containing nothing of a poisonous nature. It has the nature and attains the hardness of a part of the Stone, and assists in grinding. Good Millstones are now in use, composed of miller's use, it is put up in cases of two sizes. Price per case: Small, \$3.00; Large, \$5.00. Otherwise we shall send C. O. D. by Express, collecting for return of the money. For manufacturers, the Furrows and



Cavities and Seams in French Burr and other Millstones.

use by millers. It is much cheaper, and can be applied by an inexperienced person. It is perfectly of French Burr Stone, wears evenly with it, and not only fills the cavity, but adheres to and betirely of this preparation. The Leading Makers are Adopting it to Build Their Millstones. For We cannot open an account for so small a sum, therefore Cash should be sent with order, otherwise we furnish in bbls. of 300 lbs. Price upon application. Emery Rub Stones, for hand use in Finishing Faces of Millstones.



Emery Wheel Machine No. 0 Has 3/4 Inch Arbor.

Union Stone Co., 38 & 40 Hawley Street, Boston, Mass.

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Prices Close and Quality the Best.

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ROLLS RE-GROUND

And Re-corrugated to order. Porcelain rolls re-dressed. Our Machinery for this purpose is very accurate. Can do work promptly.

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STEVENS NON-CUTTING ROLLER MILLS

The most substantial in construction.

The best designed frame.

The best feeder.

The best horizontal adjustment.

The best perpendicular adjustment.

The only fine adjustment.

The only successful adjustment made by one hand wheel.

The best spreading device.

The best belt drive.

The best patent noiseless gear.

They have a greater capacity.

They are more easily adjusted.

They are the best in six inch diameters.

They are the most positive in action.

They will out-last any other from 5 to 10 years.

They are famous for evenness and regularity of work.

They will produce more and better shaped middlings.

They will produce less break flour.

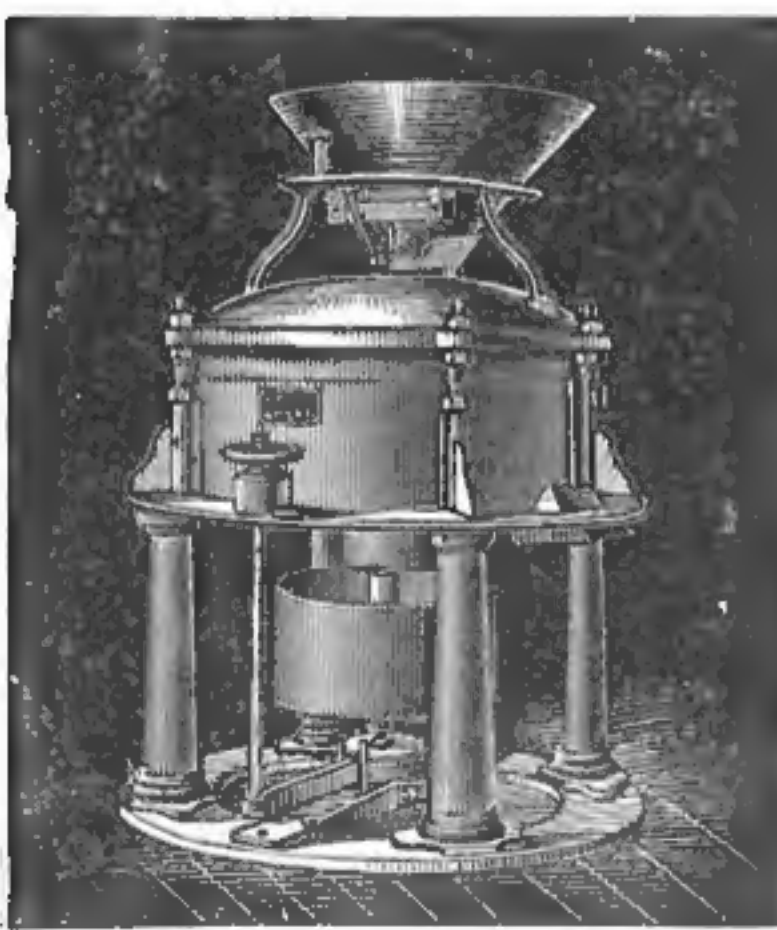
They will produce a broader and flakier bran.

They give better results on either soft, hard, or mixed wheats.

The Over SIXTEEN THOUSAND IN USE Testify To Above.

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THE JOHN T. NOYE MFG. CO., BUFFALO, N. Y., U.S.A.



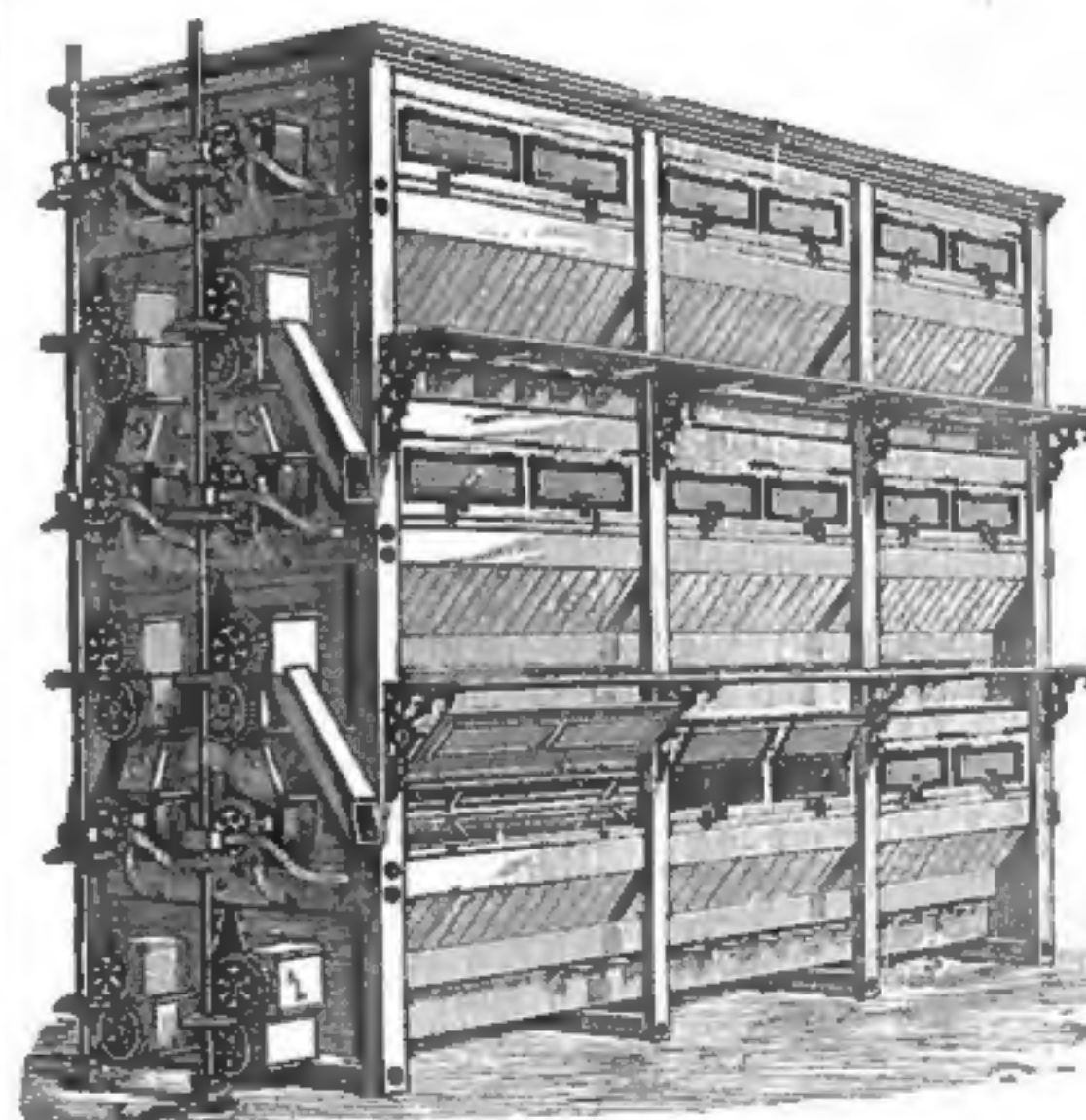
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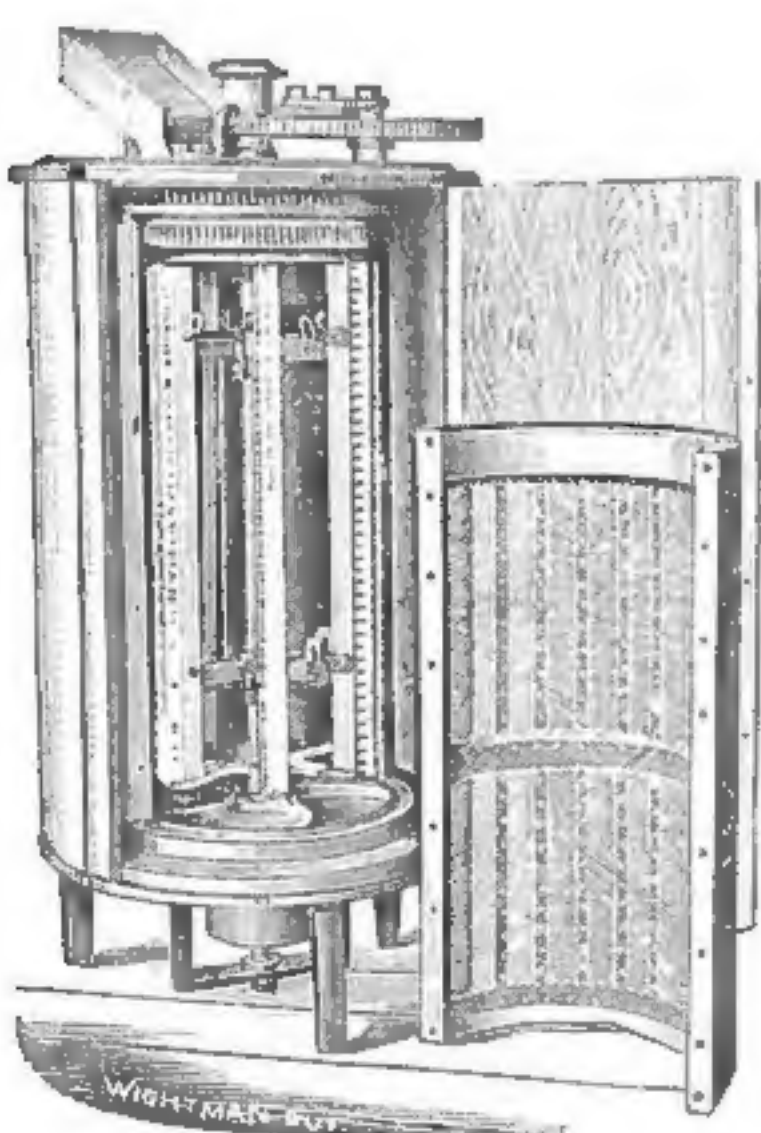
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Richmond, Indiana.

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My list embraces four sizes of Separators for mills; four sizes for warehouses. Five sizes of Smutters and Separators, and five sizes of Adjustable Brush Smutters and Finishers. Six sizes of Horizontal and seven sizes of Upright Bran-Dusters. These goods are all of my own manufacture and are warranted in every particular. Correspond with me before you place your orders.

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